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THESIS

THE COSTS/BENEFITS OF OPENING A SKILLED NURSING
FACILITY AT NAVAL HOSPITAL, SAN DIEGO

by

David D. Bruhn
June 1992

Thesis Advisor:

Joseph G. San Miguel

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92-29049



251450

130116

Unclassified

SECURITY CLASSIFICATION OF THIS PAGE

REPORT DOCUMENTATION PAGE			
1a. REPORT SECURITY CLASSIFICATION Unclassified		1b. RESTRICTIVE MARKINGS	
2a. SECURITY CLASSIFICATION AUTHORITY		3. DISTRIBUTION/AVAILABILITY OF REPORT Approved for public release; distribution is unlimited.	
2b. DECLASSIFICATION/DOWNGRADING SCHEDULE			
4. PERFORMING ORGANIZATION REPORT NUMBER(S)		5. MONITORING ORGANIZATION REPORT NUMBER(S)	
6a. NAME OF PERFORMING ORGANIZATION Naval Postgraduate School	6b. OFFICE SYMBOL (If applicable) 55	7a. NAME OF MONITORING ORGANIZATION Naval Postgraduate School	
6c. ADDRESS (City, State, and ZIP Code) Monterey, CA 93943-5000		7b. ADDRESS (City, State, and ZIP Code) Monterey, CA 93943-5000	
8a. NAME OF FUNDING/SPONSORING ORGANIZATION	8b. OFFICE SYMBOL (If applicable)	9. PROCUREMENT INSTRUMENT IDENTIFICATION NUMBER	
8c. ADDRESS (City, State, and ZIP Code)		10. SOURCE OF FUNDING NUMBERS	
		Program Element No	Project No
		Task No	Work Unit Accession Number
11. TITLE (Include Security Classification) THE COSTS/BENEFITS OF OPENING A SKILLED NURSING FACILITY AT NAVAL HOSPITAL, SAN DIEGO			
12. PERSONAL AUTHOR(S) BRUHN, David D.			
13a. TYPE OF REPORT Master's Thesis	13b. TIME COVERED From To	14. DATE OF REPORT (year, month, day) June 1992	15. PAGE COUNT 130
16. SUPPLEMENTARY NOTATION The views expressed in this thesis are those of the author and do not reflect the official policy or position of the Department of Defense or the U.S. Government.			
17. COSAT CODES		18. SUBJECT TERMS (continue on reverse if necessary and identify by block number)	
FIELD	GROUP	SUBGROUP	
19. ABSTRACT (continue on reverse if necessary and identify by block number) The objective of this study was to determine whether it would be cost-beneficial for Naval Hospital, San Diego to open a skilled nursing facility. Subsidiary purposes of the study were: (1) to determine if there is a need for skilled nursing care, (2) calculate the manpower requirements to staff a skilled nursing facility, (3) ascertain the cost to operate a skilled nursing facility, and (4) determine facility requirements. Based on the findings of this study, the following recommendations have been made: (1) open a 37-bed skilled nursing unit at Naval Hospital, San Diego as a means to reduce acute care costs, and (2) utilize the skilled nursing unit at Naval Hospital, San Diego as a pilot program to evaluate the potential for implementation of skilled nursing care at other Naval health care facilities. Analysis of financial data from civilian hospital based skilled nursing facilities in San Diego County indicates that utilization of a 37-bed skilled nursing unit at Naval Hospital, San Diego would yield potential savings of \$1,647,231 (1991 dollars) in patient care. These cost savings are made possible through utilization of smaller employees to patient ratios and less expensive staffing.			
20. DISTRIBUTION/AVAILABILITY OF ABSTRACT <input checked="" type="checkbox"/> UNCLASSIFIED//UNLIMITED <input type="checkbox"/> SAME AS REPORT <input type="checkbox"/> LIMIT USERS		21. ABSTRACT SECURITY CLASSIFICATION Unclassified	
22a. NAME OF RESPONSIBLE INDIVIDUAL Joseph G. San Miguel		22b. TELEPHONE (Include Area code) 646-2187	22c. OFFICE SYMBOL AS/Sm

DD FORM 1473, 84 MAR

83 APR edition may be used until exhausted
All other editions are obsoleteSECURITY CLASSIFICATION OF THIS PAGE
Unclassified

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The Costs/Benefits of Opening a Skilled Nursing Facility at Naval Hospital, San Diego

by

David D. Bruhn

Lieutenant, United States Navy

B.A., California State University at Chico, 1982

**Submitted in partial fulfillment
of the requirements for the degree of**

MASTER OF SCIENCE IN MANAGEMENT

from the

NAVAL POSTGRADUATE SCHOOL

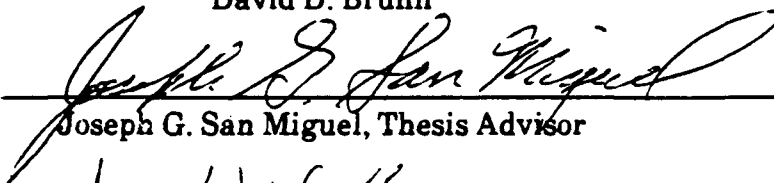
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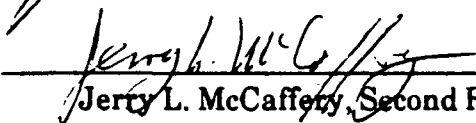


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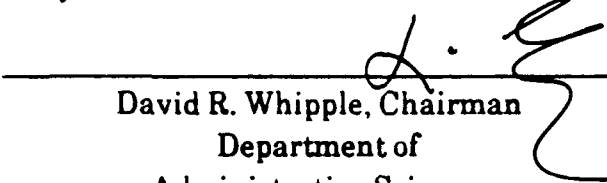
Approved by:



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**David R. Whipple, Chairman
Department of
Administrative Sciences**

ABSTRACT

The objective of this study was to determine whether it would be cost-beneficial for Naval Hospital, San Diego to open a skilled nursing facility. Subsidiary purposes of the study were: (1) to determine if there is a need for skilled nursing care, (2) calculate the manpower requirements to staff a skilled nursing facility, (3) ascertain the cost to operate a skilled nursing facility, and (4) determine facility requirements.

Based on the findings of this study, the following recommendations have been made: (1) open a 37-bed skilled nursing unit at Naval Hospital, San Diego as a means to reduce acute care costs, and (2) utilize the skilled nursing unit at Naval Hospital, San Diego as a pilot program to evaluate the potential for implementation of skilled nursing care at other Naval health care facilities.

Analysis of financial data from civilian hospital-based skilled nursing facilities in San Diego County indicates that utilization of a 37-bed skilled nursing unit at Naval Hospital, San Diego would yield potential savings of \$1,647,231 (1991 dollars) in patient care. These cost savings are made possible through utilization of smaller employee-to-patient ratios and less expensive staffing.

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DTIC	TAB <input type="checkbox"/>
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Availability Codes	
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ACKNOWLEDGEMENTS

I would like to thank the people who assisted me with this thesis.

My indebtedness to LT Nancy P. Bruhn, NC, USN, is more than that customarily owed to a spouse, for her emphasis on quality patient care has been instrumental in shaping my own view of Navy medicine.

I am especially grateful to LCDR Valdyne Viers, NC, USNR, Nurse Researcher (PhD) at Naval Hospital, San Diego, for the care and attention she paid in shepherding the author through various stages of research, and for her thoughtful and insightful editorial comments.

Finally, a special thanks is owed Professor Joseph G. San Miguel, my thesis advisor, for his knowledge, guidance, and for the opportunity to learn from his experience.

I. INTRODUCTION

A. PROBLEM STATEMENT

In previous years, the focus of Navy Medicine has been on the provision of quality care with less emphasis on the rigorous management of fiscal resources. There has been typically both constant dollar and real growth in each new budget, with little or no reduction or deletion of original line items.

However, because of the collapse of the Soviet Empire, the poor state of the U. S. economy, the budget deficit, and the perception of the American people that the Government neither requires nor can afford to maintain military forces and affiliated support activities at current levels, there will be an anticipated decline in future budgets. In addition to the possibility that both cost of living adjustments and incremental increases will be disapproved, the total amount of future budgets is expected to decline.

To offset projected large reductions in the budget, the Secretary of Defense has implemented DOD cost savings initiatives which include closure of bases, consolidation of commands, implementation of unit costing, and emphasis on Total Quality Leadership (TQL).

Vice Admiral James A. Zimble, MC, USN, Surgeon General and Chief, Bureau of Medicine and Surgery, Department of the Navy, expressed his concerns about proposed budget cuts during testimony before the Subcommittee on Military Personnel and Compensation of the House Armed Services Committee on March 13, 1991.

The United States Navy Bureau of Medicine and Surgery is responsible for the operation of 35 hospitals in the United States and overseas and 180 medical clinics. These are exclusive of facilities on Navy ships and in Marine Corp units. (Zimble, 1991)

The size and funding level of Navy medicine is determined by the size and distribution of force structure (Zimble, 1991). "In fiscal year 1991 our budget is predicated upon achieving medical workload which is essentially level with our Fiscal Year 1990 effort" (Zimble, 1991).

Funding in the military treatment facilities has been adjusted to reflect a decline in active duty beneficiary population, savings associated with a more aggressive third party collection program, and the impact of burden sharing initiatives (Zimble, 1991).

Vice Admiral Zimble expressed two significant concerns about the way the 1991 budget was formulated: "First, we have recognized savings due to other governments sharing the burden of U.S. forces being stationed in overseas operational areas" (Zimble, 1991).

Secondly, the budget reflects significant reductions in our base maintenance program due to the reduction in force levels and active duty personnel since the force draw down will be achieved primarily by limiting accessions. My concern is that in medicine, we will probably not see proportional reductions in the medical workload requirement because our retired require more resource intensive medicine than our accessions. Reducing the base maintenance program due to down sizing the force infrastructure makes sense, but care must be exercised not to reduce medical facilities prematurely. The bottom line is that we cannot fully operate the present number of facilities with the present budgeted resources. (Zimble, 1991)

B. BACKGROUND

This study explores the costs/benefits of providing skilled nursing care to Naval Hospital patients as a means to reduce

patient costs through provision of less expensive care, with an associated increase in budget (predicated on medical workload) through recapture of CHAMPUS patients.

A skilled nursing facility (SNF) is a special kind of health care entity that primarily furnishes skilled nursing and rehabilitation services, such as physical or occupational therapy. Hospitals that operate their own skilled nursing facility or unit are able to more quickly discharge their patients from acute care, thus lowering acute health care costs. Hospital discharge may occur as soon as it is determined that the patient can be discharged to sub-acute SNF care. Thus, prolonged and costly acute care hospitalizations are reduced if skilled nursing facilities are available for patients with chronic, sub-acute conditions.

Skilled nursing was implemented by civilian hospitals as a means to provide appropriate but less costly care to sub-acute patients. Yet, Naval Hospitals do not currently use skilled nursing as a means to reduce costs. This is probably because Naval Hospitals, with annual budgets, do not encounter the same fiscal constraints as civilian hospitals, which are dependent on health care insurance reimbursement as a primary source of revenue.

Since 1988, the Navy has undertaken a Civilian Health and Medical Program of the Uniformed Service (CHAMPUS) management program (Zimble, 1991). Beneficiaries have the option of using CHAMPUS if the care is not available within the local military treatment facility (MTF) (Zimble, 1991). To the 25 percent of Navy

beneficiaries residing outside of MTF catchment areas, it is the only government provided health care (Zimble, 1991). However, recently enacted increases in CHAMPUS deductibles encourage users to return to the Navy direct care system. The Bureau of Medicine and Surgery is working to improve management of this costly CHAMPUS program. (Zimble, 1991)

C. OBJECTIVE

The objective of this study was to determine whether it would be cost-beneficial to provide skilled nursing care at Naval Hospital, San Diego.

D. THE RESEARCH QUESTION

The purposes of this study were:

1. To determine if there was a need for skilled nursing care at Naval Hospital, San Diego.
2. To determine the requirements of opening a skilled nursing facility/unit at Naval Hospital, San Diego.
 - a. To calculate the manpower requirements to staff a skilled nursing facility/unit located within existing facilities at Naval Hospital, San Diego.
 - b. To ascertain the cost to operate a skilled nursing facility/unit at Naval Hospital, San Diego.
 - c. To delineate facility requirements for a skilled nursing facility/unit at Naval Hospital, San Diego.

E. SCOPE, LIMITATIONS, AND ASSUMPTIONS

1. Scope

The setting for this study was the twelve hospital-based skilled nursing facilities located in San Diego county in 1989. The method of data collection was via a search of records. Information was obtained from financial disclosure records submitted by individual hospitals to the California Office of Statewide Health Planning and Development and from data furnished by Naval Hospital, San Diego.

2. Limitations

For the purpose of this study, the following limitations were identified.

a. The study focused only on the feasibility of opening a hospital-based skilled nursing facility/unit within the Naval Hospital versus the more expensive alternate of implementing a freestanding SNF, which is a building external to the hospital.

b. The potential utilization of skilled nursing care at Naval Hospital, San Diego by dependent and retired military personnel is undetermined. However, there is expected to be a reduction in future usage due to the planned reduction in force within the Department of Defense and the Department of the Navy.

c. A detailed analysis of the current operating costs at Naval Hospital, San Diego was not possible since they, like other Naval Commands, do not use unit costing, which is the practice of allocating all costs to a final output.

d. Original analysis of the twelve hospital-based skilled

nursing facilities (HB/SNF) located in San Diego county in 1989 was conducted using a summary of facility data provided by the California Office of Statewide Health Planning and Development. However, additional detailed financial data was needed to perform a comprehensive analysis. A cutoff date was established for gathering and analyzing financial data received from the skilled nursing facilities. At the deadline, data had been received from all but three of the twelve HB/SNFs: Sharp Cabrillo Hospital, Valley Medical Center, and San Diego County Psychiatric Hospital. Psychiatric Care Facilities are exempt from filing financial disclosure reports by the State of California. Subsequent investigation revealed that data was available from Sharp Cabrillo Hospital and Valley Medical Center. However, in view of the limited time available for analysis, this data was not included in the study. Subsequent review indicates that inclusion of the data would not significantly effect the results of the study.

e. Although it appears that provision of skilled nursing to adolescent or psychiatric patients is not applicable to Naval Hospital, San Diego, data from Children's Hospital and San Diego County Psychiatric Hospital have been included in the study for readers who might be interested in these patient populations.

f. The study does not determine how to implement the recommendations and conclusions of the study should the Commanding Officer of Naval Hospital, San Diego decide to open a skilled nursing facility. Examples of implementation issues include the decisions to fund a HB/SNF with the existing budget or to request

additional monies, plus provide staffing from the manpower available or to request a change in manpower authorization.

3. Assumptions

For the purposes of this study, it was assumed that:

1. Both Naval and civilian hospitals endeavor to provide quality patient care.

2. The delivery of military and civilian health care is very similar, with the possible exception of military field/operating units.

3. Recognized means to reduce costs, without a subsequent decline in the quality of patient care, are applicable to both civilian and military treatment facilities.

F. DEFINITIONS AND ABBREVIATIONS

For the purpose of this study, the following definitions have been formulated:

Administratively necessary days (ANDs) -- Days that patients remain in acute-care beds beyond the time the physician has authorized discharge because of the inability to secure placement in a nursing facility.

Average length of stay (ALOS) -- This average is the result of dividing inpatient days by service discharges.

Case mix -- The distribution of patients within a facility according to the type and quantity of nursing care required.

Hospice -- A health care facility that administers palliative and supportive services which provide physical, psychological, social and spiritual care for dying persons and their families.

Hospital-based Skilled Nursing Facility (HB/SNF) -- A Skilled Nursing Facility/Unit located within and operated by an acute care hospital which is licensed for long term care.

Intermediate Care Facility (ICF) -- Provides long term care that does not meet the standards for skilled nursing care, but is still classified as a health service.

Long Term care (LTC) -- Refers to both skilled nursing and intermediate care. Long Term Care is commonly referred to as "nursing home" care, although it may be delivered in an acute care hospital which is licensed for LTC.

Medical Surgical (M/S) -- General acute care of patients with medical and surgical diagnoses on a hospital ward.

Occupancy Rate -- A measure of the usage of the licensed beds over the year that is derived by dividing the year's patient days by the licensed bed days.

Provider -- A term for physician or doctor. May also be used to describe a nurse practitioner, midwife, registered nurse, or hospital.

Skilled Nursing Facility (SNF) -- Primarily furnishes skilled nursing and rehabilitation services. It may be a separate freestanding facility or a distinct part of another facility, such as a hospital or a nursing home.

G. ORGANIZATION OF STUDY

Succeeding chapters of this study will focus on the following areas.

Chapter II describes the background issues that apply to the

opening and operating of a skilled nursing facility (SNF). These topics include: (a) SNF admission criteria, (b) benefits of operating a SNF, (c) Medicare and "Medical" health insurance reimbursement, (d) SNF expenditure categories, (e) SNF facility requirements, (f) need for skilled nursing care at Navy hospitals, and (g) utilization of skilled nursing care by dependents and retired personnel.

Chapter III presents the methods used in conducting the research and the structure of the analysis.

Chapter IV presents an analysis of the financial disclosure records from 9 hospital-based skilled nursing facilities, located in San Diego county and from data furnished by Naval Hospital, San Diego. This information was the basis for the recommendations and conclusions of the study.

Chapter V (1) provides a summary of the study; (2) makes specific recommendations for implementation of skilled nursing care at Naval Hospital, San Diego; (3) describes the implications of adopting skilled nursing care at Naval Hospital, San Diego and other Military Treatment Facilities, and; (4) concludes that a skilled nursing unit should be established at Naval Hospital, San Diego.

II. LITERATURE REVIEW AND BACKGROUND ISSUES

A. THE DIFFERENCE BETWEEN SKILLED NURSING CARE AND NURSING HOME CARE

A skilled nursing facility is a special kind of health care entity that primarily furnishes skilled nursing and rehabilitation services, such as physical or occupational therapy. It may be a separate freestanding facility or a distinct part of another facility, such as in a hospital or a nursing home. (DHHS, 1991)

Nursing homes are certified as either skilled nursing facilities (SNFs) or intermediate care facilities (ICFs). The distinction largely reflects the amount of and level of nursing care that is provided. A nursing home can have some beds certified as SNF and others as ICF.

Patients being discharged from the hospital may be discharged into a SNF or an ICF, depending upon their level of required physical care (Welch, 1989). Skilled nursing care is the most medically intense type of nursing home care.

B. CRITERIA FOR ADMISSION TO A SKILLED NURSING FACILITY

Most insurance companies require that hospitalization precede skilled nursing home care. Almost all insurance policies require that skilled nursing care be recommended by a medical doctor. (Wiener, 1987)

Medicare enrollees are eligible for this benefit if they are admitted to a SNF within 30 days of their discharge from a hospital, with a hospital stay of at least 3 days. They must require either daily skilled-nursing or rehabilitation services

resulting from the condition for which they were hospitalized. (Welch, 1989) If hospital patients are not eligible for the Medicare SNF benefit, they may enter nursing homes as Medicaid patients (if they meet certain income eligibility criteria) or as private paying patients.

C. BENEFITS OF A SKILLED NURSING FACILITY

Patients who do not need the acute care offered by a hospital may receive appropriate care within a skilled nursing unit or facility. Sufficient nursing and health care services are needed to facilitate the early hospital discharge of these patients in an efficient and safe manner. (Zimmer, 1988)

Hospitals that operate their own skilled nursing facility or unit are able to more quickly discharge their patients from acute care, thus lowering acute health care costs. Hospital discharge may occur as soon as it is determined that the patient can be discharged to post-acute SNF care. (Welch, 1989)

Hospitals with limited access to the nursing-home facilities must bear the costs of additional days of acute care. These additional hospital days are known as administratively necessary days (ANDs). These are days that patients remain in acute-care beds beyond the time the physician has authorized discharge because of the inability to secure placement in a nursing facility. (Welch, 1989)

Hospitals that operate their own SNFs are able to reduce their costs per patient admission below that of other hospitals. Thus, prolonged and costly acute care hospitalizations are reduced if

skilled nursing facilities are available for patients with chronic sub-acute conditions. Unnecessary acute care hospitalization is most pronounced in areas of tight nursing-home markets, and reduced in areas with more favorable nursing-home market conditions. (Welch, 1989)

D. DIFFERENCES BETWEEN HOSPITAL-BASED AND FREESTANDING SKILLED NURSING FACILITIES

Hospital-based facilities treat a different, more intensive case mix than freestanding skilled nursing facilities. This case mix is the distribution of patients within a facility according to the type and quantity of care required. Additionally, hospital-based facilities provide care for patients with a greater degree of functional dependency and requiring special nursing procedures. These patients are more dependent in activities of daily living (ADLs) and have a higher prevalence of medically related problems. Whereas, patients in freestanding facilities tend to have more terminal illness, with psychosocial and mental problems. (Shaughnessy, 1985)

Because hospital-based facilities have a significantly higher case mix severity, there is a greater need for medical and highly skilled nursing services than in freestanding nursing homes (Shaughnessy, 1985). Hospital-based facilities provide more rehabilitation services and generally have higher nurse-to-bed ratios than freestanding facilities (Sulvetta, 1986).

Because hospital-based units/facilities have a high percent of patients with intensive resource use, they have substantially

greater operating costs than freestanding facilities.

Medicare administration has acknowledged that the required method of allocating overhead costs to the SNF cost center may result in higher costs for hospital-based SNFs. In recognition of this, hospital-based facilities/units are allowed an "add-on" to their ceiling. However, the average cost attributable to these overhead allocation procedures is minimal. (Sulvetta, 1986)

Although significant differences exist in the facility characteristics of hospital-based and freestanding SNFs, these different characteristics cannot fully explain existing cost differences (Sulvetta, 1986). Sufficient objective data is not available to definitively quantify the proportion of cost differences that can be attributed to factors such as: unmeasured case mix, quality of care, and inefficiency (Schieber, 1986). However, the bulk of the evidence suggests that about 50 percent of the observed mean cost differences between hospital-based and freestanding facilities can be attributed to case mix and staffing differences.

E. MEDICARE AND MEDICAL

Medicare is a federal health insurance program for people 65 or older, people of any age with permanent kidney failure, and certain disabled people under 65. It is administered by the Health Care Financing Administration (HCFA) of the U.S. Department of Health and Human Services.

Medicare hospital insurance helps pay for medically necessary services furnished by Medicare-certified hospitals, skilled nursing

facilities, home health agencies, and hospices (DHHS, 1991).

Medicare benefits for skilled nursing care are payable only if a skilled level of care is required and the care is provided in a SNF certified by Medicare. Medicare will not pay for custodial services for patients, such as help in walking, getting in and out of bed, eating, dressing, bathing, and taking medication. (DHHS, 1991)

To qualify for Medicare coverage a patient must have been:

1. Hospitalized for a least 3 consecutive days
2. Admitted to a SNF within 30 days of discharge from the hospital
3. A physician must certify that the patient requires and receives skilled nursing or skilled rehabilitation services on a daily basis.

The SNF care also must be related to the condition for which the patient was treated in the hospital.

Medicare will pay for up to 100 days of extended care services in a skilled nursing facility. All approved amounts for the first 20 days of care are fully paid by Medicare. All approved amounts for the next 80 days are paid by Medicare except for the portion of the approved amount the patient is required to pay. In 1990 this amount was \$78.50 a day. (DHHS, 1991)

Medicare pays a skilled nursing facility its average per diem cost up to a ceiling. Medicare reimbursement is based on "reasonable cost", with routine operating costs subject to a ceiling. The ceiling is adjusted by the HCFA hospital wage

index. (Welch, 1989) Other costs, such as capital and ancillary costs, are not subject to the ceiling and are reimbursed at full cost (Sulvetta, 1986).

Medicare sets separate ceilings for freestanding and hospital-based facilities. This is designed to recognize the higher cost experience of hospital-based SNFs. The ceiling for hospital-based SNFs is currently set at 112 percent of mean costs for freestanding facilities, plus 50 percent of the difference between the mean cost of freestanding and hospital-based homes. Medicare accounting procedures require skilled nursing facilities to report expenses on a cost-center basis. Separate cost centers exist for routine inpatient services, ancillary service departments, overhead, and capital costs. (Sulvetta, 1986)

"Medical" is a State of California health insurance program for patients that meet certain low income eligibility criteria. The income limits in 1990 were \$6,280/year for one person and \$8,420/year for a married couple. (DHHS, 1991) "Medical" is administered by the California Department of Health Services (DHS) (this health insurance is unique to California, and referred to as Medicaid in other states).

"Medical" reimburses, up to a ceiling, nursing homes based on average cost of the facility or industry. For hospital-based skilled nursing facilities/units, payment is the lesser of costs as projected by the Department of Health Services or the prospective median rate. The prospective median rate is \$209.35 per patient day for facilities with fewer than 121 beds and \$209.70 for

facilities with 122 beds or more. State-operated SNFs are reimbursed at actual allowable cost. The rate for supplemental payment to SNF providers for services to the chronic mentally disordered is \$5.72 per patient day. (DHS, 1991)

F. COST ANALYSIS

Cost function analysis considers the factors of efficient operation that predict cost, based on the assumption that an organization wishes to minimize costs. However, nursing homes do not operate under free market conditions. State governments, via the Medicaid health insurance program, are the primary payers of nursing home costs. Using per diem rates based on historical costs, Medicaid reimbursement encourages providers to display higher costs in order to obtain higher reimbursement. For-profit nursing homes seek to maximize profit. Whereas, nonprofit and publicly owned facilities that obtain subsidies from local governments and religious organizations attempt to maximize the amount of care provided subject to no loss constraints. (Arling, 1987)

Costs are a function of facility characteristics. Relevant facility characteristics include the number of beds, admissions per bed, occupancy rates, case mix, hospital wage, extent of teaching, and size of the metropolitan area. (Welch, 1989) For example, the greater the number of admissions per bed, the greater the tendency for orientation towards a more expensive short-term rehabilitation patient.

A greater percentage of hospital-based facilities have a high

number of admissions per bed than do freestanding facilities (Sulvetta, 1986). Furthermore, lower occupancy rates are associated with higher cost because of the necessity to cover fixed costs incurred for unused beds. The average occupancy rate for hospital-based facilities are lower than those of freestanding facilities. (Sulvetta, 1986)

Facilities with a higher case mix severity use greater resources and incur higher accompanying costs than similar facilities with relatively lower resource use patients (Shaughnessy, 1985). Other characteristics affecting costs analysis are geography and type of hospital. Geographical location has a strong impact in some states because of widely varying input and labor market conditions. (Arling, 1987) Additionally, teaching hospitals incur higher costs than similar non-teaching hospitals due to higher ratio of interns and residents to beds.

G. EXPENDITURE CATEGORIES

The Health Care Financing Administration (HCFA) developed an input price index for skilled nursing facilities in the early 1980s. Input price indexes price a consistent set of goods and services over time using a base year as a bench mark. Since their creation, these price indexes have been an important means to determine payment levels. Price indexes reveal the contribution of input price increases to escalating health expenditures. (Donham, 1989)

The input price indexes are fixed-weight indexes that are constructed in two steps. First, a base period is selected. For

the skilled nursing facility price index, that base period is 1977. Second, a set of cost categories are identified and their 1977 expenditure level determined. The proportion of total expenditures accounted for by specific spending categories is calculated. Third, a price proxy designed to measure the rate of increase of goods and services in each expenditure category is calculated. The price proxy index for each expenditure is multiplied by the weight for that expenditure. The sum of these products divided by all cost categories yields the price index for any given time period. (Donham, 1989)

The most recent SNF input price index was published October 2, 1987 in the Federal Register. Data excerpted from the current publication is shown in Table I. Base year expenditure weights and forecast price proxy indexes for 1991 are included. The baseline for this publication consists of the 1977 data. The calculated expenditure weights for the fourth quarter of 1991 are included in the table.

TABLE I

**QUARTERLY PERCENT CHANGE IN THE SKILLED NURSING FACILITY INPUT
PRICE INDEX, BY EXPENSE CATEGORY**

Expenditure Category	Base Year Weights 1977	1991 Q1	1991 Q2	1991 Q3	1991 Q4	1991 Weights Q4
Total	100.00	5.0	5.1	5.3	5.4	100.00
Wages and Salaries	63.02	4.9	5.1	5.3	5.5	64.28
Employee Benefits	7.60	6.0	6.2	6.4	6.5	9.16
Food	9.74	4.0	3.9	3.8	3.9	7.04
Direct purchase	4.93	3.7	3.6	3.6	3.6	3.33
Contract service	4.81	4.3	4.1	4.1	4.1	3.71
Fuel and other energy	4.27	4.7	4.9	5.1	5.2	4.12
Electricity	1.21	3.2	3.1	3.1	3.2	0.71
Natural gas	0.91	2.9	3.0	3.1	3.2	0.54
Fuel oil and coal	1.66	6.1	6.5	6.8	7.1	2.17
Water and sewage	0.49	7.6	7.6	7.7	7.7	0.70
All other	15.37	5.3	5.2	5.3	5.4	15.39
Drugs	1.50	7.3	6.7	6.2	5.9	1.66
Supplies	3.28	4.6	4.7	4.8	4.9	3.02
Health services	1.21	7.1	6.6	6.7	7.1	1.62
Business services	4.59	5.0	5.1	5.2	5.4	4.67
Miscellaneous	4.79	4.6	4.7	4.8	4.9	4.42

(Source: Health Care Financing Administration)

Notes: Data for 1991 are forecast. Q designates quarter of year. Quarterly data shown are four-quarter moving averages

Table I figures indicate that as a percent of total expenditures, wages and salaries comprise a majority of the total costs (64.28%). Employee benefits (9.16%) and food (7.04%) are the next highest, although much smaller expenditure categories. A comparison of 1977 data and calculated data for forth quarter 1991

show that as a percent of total expenditures wages and salaries and employee benefits have increased (from 63.02% to 64.28%, and 7.7% to 9.16% respectively), while food, fuel and other energy costs have decreased (from 9.74% to 7.04%, and 4.27% to 4.12%). The other category which includes drugs, supplies, health and business services, and miscellaneous items is essentially the same for 1977 and 1991 (15.37% and 15.39%).

H. FACILITY REQUIREMENTS FOR A SKILLED NURSING FACILITY

1. Legal Requirements

Federal regulations for the operation of skilled nursing facilities, which receive Medicare and Medicaid reimbursement, are delineated in the Omnibus Budget Reconciliation Act of 1987 (Public Law 100-203-Dec 22, 1987). Following is a summary of these requirements, which became effective October 1, 1990.

a. Quality Assessment And Assurance

A skilled nursing facility must maintain a quality assessment and assurance committee, consisting of the director of nursing services, a physician designated by the facility, and at least 3 other members of the facility's staff. This committee must meet at least quarterly to identify issues for which quality assurance is necessary, as well as develop and implement appropriate plans of action to correct identified deficiencies.

b. Provision Of Services And Activities

A skilled nursing facility must provide for the provision of (1) medically-related social services; (2) pharmaceutical services; (3) dietary services; (4) routine and

emergency dental services; and (5) an on-going program of activities to meet the interests and physical, mental, and psychosocial well-being of each patient, which is directed by a qualified professional.

c. Required Nursing Care

A skilled nursing facility must provide 24-hour nursing service to provide care for its residents and must employ the services of a registered nurse at least during the day tour of duty (at least 8 hours a day) 7 days a week.

d. Regular In-service Education

A skilled nursing facility must provide such regular performance review and in-service education as assures that individuals assigned as nurses aids are competent to perform their duties.

e. Physician Supervision And Clinical Records

A skilled nursing facility must (1) require that the medical care of every patient be provided under the supervision of a physician; (2) provide for having a physician available to give medical care in case of emergency; and (3) maintain clinical records on all patients, which include the plans of care and the residents' assessments.

f. Required Social Services

A skilled nursing facility with more than 120 beds must have at least one social worker (with at least a bachelor's degree in social work or similar professional qualifications) employed full-time.

I. ESTIMATION OF NEED FOR SKILLED NURSING CARE AT NAVAL HOSPITALS

It is difficult to estimate the need for skilled nursing care upon discharge from Naval Hospitals. A patient is admitted to a SNF following receipt of acute care and a subsequent decision by the attending physician that the patient's condition is stable. This decision is made on a case-by-case basis by individual providers. Therefore, it is difficult to predict the future need for skilled nursing, based on the total number of acute care units provided.

Arguably, the need for skilled nursing is also tied to fiscal constraints, as evidenced by civilian health care practices. Since consignment from acute care to skilled nursing involves a reduction in level of acute care, it is preferable in the absence of fiscal and/or occupancy constraints to provide acute care for patients until discharge. Thus, in order for Naval Hospitals to utilize skilled nursing to the same degree as civilian health care facilities, there would need to be both fiscal constraints and a change in the existing culture.

J. UTILIZATION RATE OF SKILLED NURSING CARE BY DEPENDENT AND RETIRED MILITARY PERSONNEL

Another unknown factor is what the utilization rate by dependent and retired personnel would be if Naval Hospitals employ skilled nursing. Historically, patients remain as in-patients at health care facilities until their health insurance no longer covers their medical expenses and health care costs. Medicare currently pays for up to 100 days of extended care services in a

skilled nursing facility. Not surprisingly, the average length of patient stay at 11 hospital-based SNF's in San Diego county in 1989 was 121 days.

If inexpensive military skilled nursing care was made available the possibility exists that retired and dependent personnel would remain as in-patients for lengthy periods of time. However, the provision of skilled nursing care in a military treatment facility to retirees and dependents would facilitate health care savings for the Department of Defense through recapture of patients currently receiving more costly CHAMPUS health care.

III. METHODOLOGY

A. RESEARCH DESIGN

The objective of this study was to determine whether it would be cost-beneficial for Naval Hospital, San Diego to provide skilled nursing care to their patients. Subsidiary purposes of the study were:

1. To determine if there was a need for skilled nursing care at Naval Hospital, San Diego.

2. To determine the requirements of opening a skilled nursing facility/unit at Naval Hospital, San Diego.

- a. To calculate the manpower requirements to staff a skilled nursing facility/unit located within existing facilities at Naval Hospital, San Diego.

- b. To ascertain the cost to operate a skilled nursing facility/unit at Naval Hospital, San Diego.

- c. To delineate facility requirements for a skilled nursing facility/unit at Naval Hospital, San Diego.

The setting for this study was the twelve hospital-based skilled nursing facilities located in San Diego County in 1989. The method of data collection was via a search of records. Information was obtained from financial disclosure records submitted by individual hospitals to the California Office of Statewide Health Planning and Development and from data furnished by Naval Hospital, San Diego.

A detailed analysis of the current operating costs at Naval Hospital, San Diego was not possible since they, like

other Naval Commands, do not use unit costing, which is the practice of allocating all costs to a final output. Alternatively, financial data was obtained from civilian hospital-based skilled nursing facilities located in San Diego County. This data was utilized to determine if it would be cost-beneficial for Naval Hospital, San Diego to provide skilled nursing care since:

1. The delivery of military and civilian health care is very similar, with the possible exception of military field/operating units.

2. Recognized means to reduce costs, without a subsequent decline in the quality of patient care, are applicable to both civilian and military treatment facilities.

B. SAMPLE SIZE

The twelve hospital-based skilled nursing facilities originally selected for analysis in this study were: Palomar Medical Center, Pomerado Hospital, Children's Hospital, Donald N. Sharp Memorial Hospital, Sharp Cabrillo Hospital, Community Hospital of Chula Vista, Coronado Hospital, Hillside Hospital, Mission Bay Memorial Hospital, San Diego Physicians and Surgeons Hospital, Valley Medical Center, and San Diego County Psychiatric Hospital.

An initial analysis of the twelve HB/SNFs was conducted using a publication (1989 Annual Report of Skilled Nursing/Intermediate Care Facilities - Volume 2) published by the California Office of Statewide Health Planning and

Development. However, the information contained in this publication was insufficient to perform a comprehensive analysis. Subsequent analysis was conducted using financial disclosure reports from nine of the twelve hospital-based skilled nursing facilities.

C. DEMOGRAPHICS

The following is an overview of the nine civilian hospitals used for analysis in the study. A summary of facility data is shown in Table II.

The hospitals with the largest patient capacity in descending order were Donald N. Sharp Memorial Hospital (581 beds), Palomar Medical Center (408 beds), Pomerado Hospital (279 beds), and Community Hospital of Chula Vista (229 beds). The facility with the smallest patient capacity was Coronado Hospital with 115 beds.

All of the hospitals characterized the type of treatment they provided as short term - general, with the exception of Children's Hospital which provided short term - children's care.

All of the hospitals provided treatment for Medicare, Medical, and CHAMPUS patients. Additionally, Palomar Medical Center, Children's Hospital, and Donald N. Sharp Memorial Hospital provided care for patients enrolled in the crippled children's government-reimbursed health care program.

Pomerado Hospital, Donald N. Sharp Memorial Hospital, and Coronado Hospital provided a full range of 24 hours on the

premises medical services. This coverage included an emergency room, physician, pharmacist, operating room, laboratory services, X-ray services, and an anesthesiologist. In contrast, Mission Bay Memorial Hospital and Community Hospital of Chula Vista provided the least number of 24 hour services, comprised of an emergency room, physician, and laboratory services only.

Palomar Medical Center and Pomerado Hospital were district owned and operated. Children's Hospital, Donald N. Sharp Memorial Hospital, Hillside Hospital, Community Hospital of Chula Vista, and Coronado Hospital were controlled by non-profit corporations. Conversely, Mission Bay Memorial Hospital and San Diego Physicians and Surgeons Hospital were managed for profit by investor-corporations.

TABLE II

PROFILE OF MEDICAL TREATMENT FACILITIES WITH HB/SNFs

Hospital	Number of Beds	Ownership	Type of Care	Government Programs	24 Hours on Premises
Palomar Medical Center	408	District	Short Term General	Medicare Medical Crippled Children Champus	Emerg Room Physician Operating Rm Lab Services X-Ray Service
Pomerado Hospital	279	District	Short Term General	Medicare Medical Champus	Emerg Room Physician Pharmacist Operating Rm Lab Services X-Ray Service Anesthesi- ologist
Children's Hospital	198	Non Profit Corp	Short Term Child- ren's	Medicare Medical Crippled Children Champus	Physician Pharmacist Operating Rm Lab Services X-Ray Service
Donald N. Sharp Memorial Hospital	581	Non Profit Corp	Short Term General	Medicare Medical Crippled Children Champus	Emerg Room Physician Pharmacist Operating Rm Lab Services X-Ray Service Anesthesi- ologist
Mission Bay Memorial Hospital	150	Investor Corp	Short Term General	Medicare Medical Champus	Emerg Room Physician Lab Services
San Diego Physicians and Surgeons Hospital	187	Investor Corp	Short Term General	Medicare Medical Champus Other	Emerg Room Physician Lab Services X-Ray Service
Hillside Hospital	133	Non Profit Corp	Short Term General	Medicare Medical Champus	Emerg Room Operating Rm Lab Services X-Ray Service
Community Hospital of Chula Vista	229	Non Profit Corp	Short Term General	Medicare Medical Champus	Emerg Room Physician Lab Services
Coronado Hospital	115	Non Profit Corp	Short Term General	Medicare Medical Champus	Emerg Room Physician Pharmacist Operating Rm Lab Services X-Ray Service Anesthesi- ologist

D. CONVERSION AND PRESENTATION OF DATA

Because the civilian hospital financial disclosure reports, and data provided by Naval Hospital, San Diego were too extensive to include in entirety, significant portions have been summarized in Appendixes A through T. From this data and other sources of information, the Tables and Figures contained in the text were developed.

Although it appears that provision of skilled nursing to adolescent or psychiatric patients is not applicable to Naval Hospital, San Diego, some data from Children's Hospital and the San Diego County Psychiatric Hospital have been included in the study for readers who might be interested in these patient populations.

IV. ANALYSIS

A. OVERVIEW OF THE 12 HOSPITAL-BASED SKILLED NURSING FACILITIES LOCATED IN SAN DIEGO COUNTY IN 1989

1. Distribution Of Patients By Age Groups

A summary of the distribution of patients at 12 San Diego county hospital-based skilled nursing facilities (HB/SNF) in 1989 by age groups is shown in Appendix A. A majority of the patients at six of the twelve SNFs were elderly, between the ages of 75 and 94. These facilities include Palomar Medical Center (66.6%), Pomerado Hospital (61.1%), Donald N. Sharp Memorial Community Hospital (65.8%), Mission Bay Memorial Hospital (92.3%), Hillside Hospital (56.3), and Sharp Cabrillo Hospital (65.4%).

While most of these health care facilities provided treatment for a predominately older patient population, the emphasis of two of the SNFs was to provide care for younger patients. All of the patients at Children's Hospital and the San Diego County Psychiatric Hospital were less than 45 years old. The percentage of patients less-than-45-years-old at the other facilities were: Valley Medical Center (32.4%), San Diego Physicians and Surgeons Hospital (16.4%), and Pomerado Hospital (11.1%). In contrast, Mission Bay Memorial Hospital, and Coronado Hospital did not have any patients under the age of 45, and Sharp Cabrillo Hospital had only one. San Diego Physicians and Surgeons Hospital had the most evenly distributed patient age groups. The largest age group was 75-84 years (20.3%) and the smallest, 95 years and over (5.1%). Community Hospital of Chula Vista did not

categorize patient data by age groups. Distribution of total HB/SNF patients by age group categories is shown in Figure 1.

2. Categorization Of Occupancy Rates By Ownership

The occupancy rates for hospital-based skilled nursing facilities (HB/SNF) in San Diego County in 1989 is shown in Appendix B. The occupancy rates for skilled nursing facilities owned by nonprofit corporations was significantly higher (91.8%-106.4%) than those owned by profit corporations (46.4%-82.2%), publicly owned (43.0% and 84.5%), and county owned (69.7%). Sharp Cabrillo Hospital and Community Hospital of Chula Vista were able to accommodate skilled nursing facility patient occupancy rates of greater than 100 percent by supplementing licensed beds with additional beds certified for other types of care. The average occupancy rate of the HB/SNF's listed by type of ownership is shown in Figure 2.

Patient occupancy rates were the highest at skilled nursing facilities owned and operated by nonprofit corporations. For-profit SNFs are profit maximizers, while nonprofit and publicly owned facilities wish to maximize size and quality subject to no loss constraints. These latter two groups will increase quality and provide more amenities to the extent that they are able to generate additional revenue from internal or external sources, e.g., attracting private payers or obtaining subsidies from sponsoring activities.

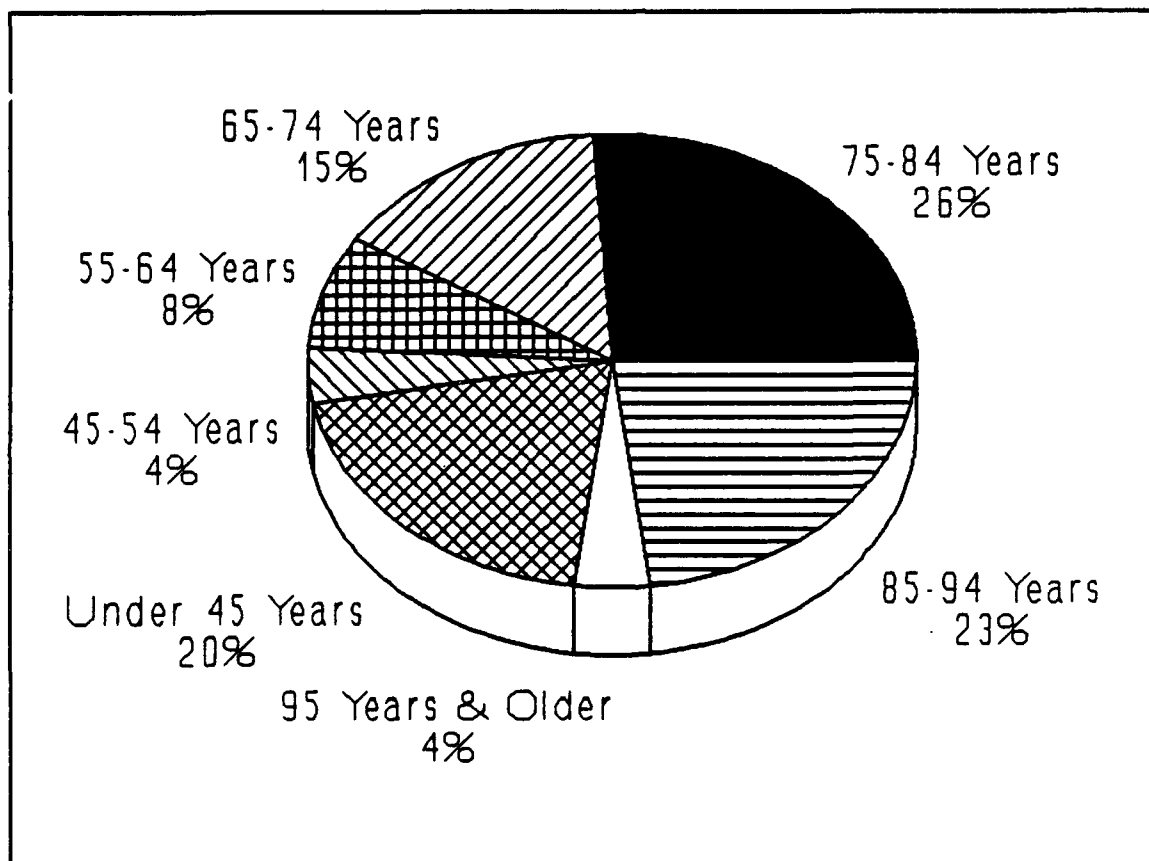


Figure 1. Distribution of Total HB/SNF Patients by Age Groups
(Source: Office of Statewide Health Planning and Development)

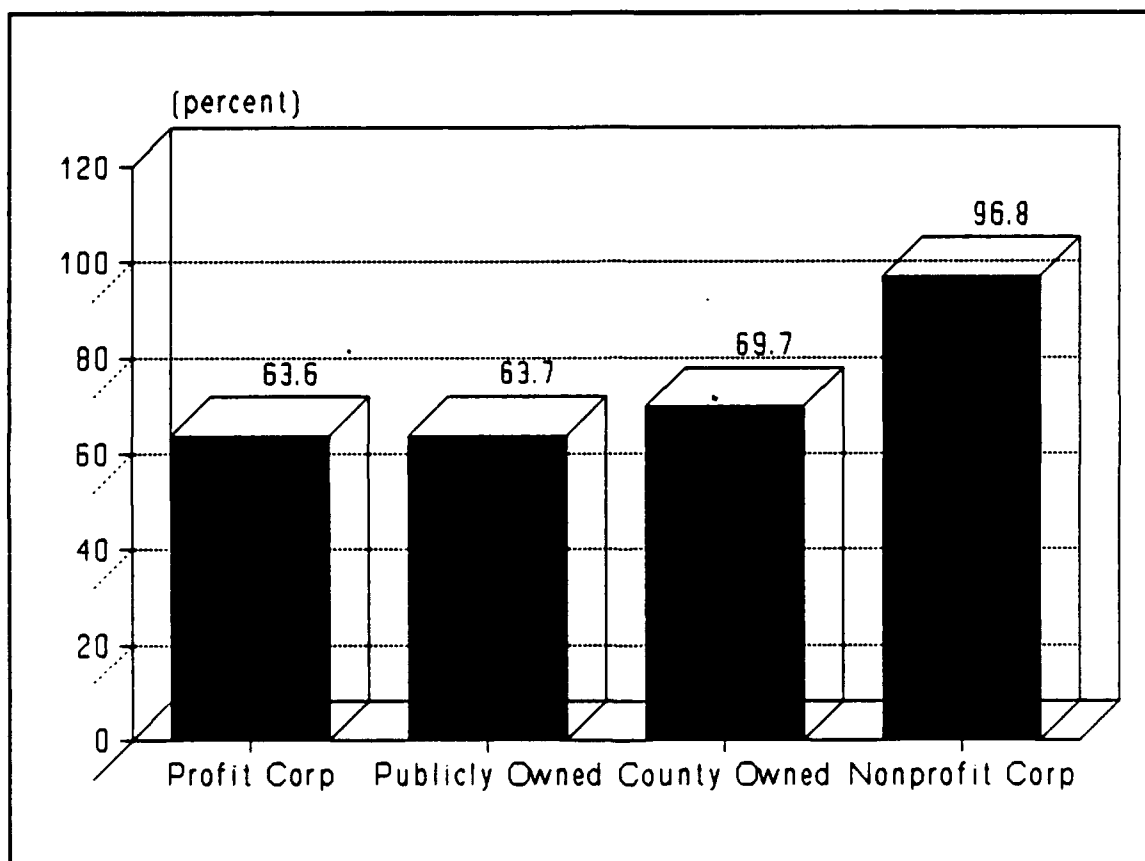


Figure 2. Average HB/SNF Occupancy Rate by Ownership (Source: Office of Statewide Health Planning and Development)

3. Patient Health Care Insurance Reimbursement

"Medical" paid for the health care costs of a majority of the patients at all of the skilled nursing facilities, with the exception of Sharp Cabrillo Hospital, Coronado Hospital, Mission Bay Memorial Hospital, and San Diego Psychiatric Hospital. At Sharp Cabrillo Hospital, Medicare patients were the majority (84.6%); while at Coronado Hospital, the patient population was predominately private payers (78.7%). The predominance of Medicare reimbursed and private patients at these facilities may be due to demographics. Sharp Cabrillo, Coronado, and Mission Bay Memorial Hospitals are located in more affluent communities than the other facilities. Mission Bay Memorial Hospital treated only Medicare patients. Patient costs at the San Diego County Psychiatric Hospital were reimbursed by local government. Source and percentage of total patient revenues, e.g., Medicare, Medical, other third party insurance, private payer, and county reimbursement for each HB/SNF is summarized in Appendix C. Type and average percentage of health care reimbursement is shown in Figure 3.

4. Average Length Of Patient Stay

Calculated average length of patient stay at the skilled nursing facilities was determined using data from Appendix B. Average length of stay is determined by dividing patient days by number of discharges. Analysis of this data shows that the average length of patient care prior to discharge was shortest at Mission Bay Memorial Hospital (15 days) and Sharp Cabrillo Hospital (17.6 days). These two facilities are categorized by predominately older

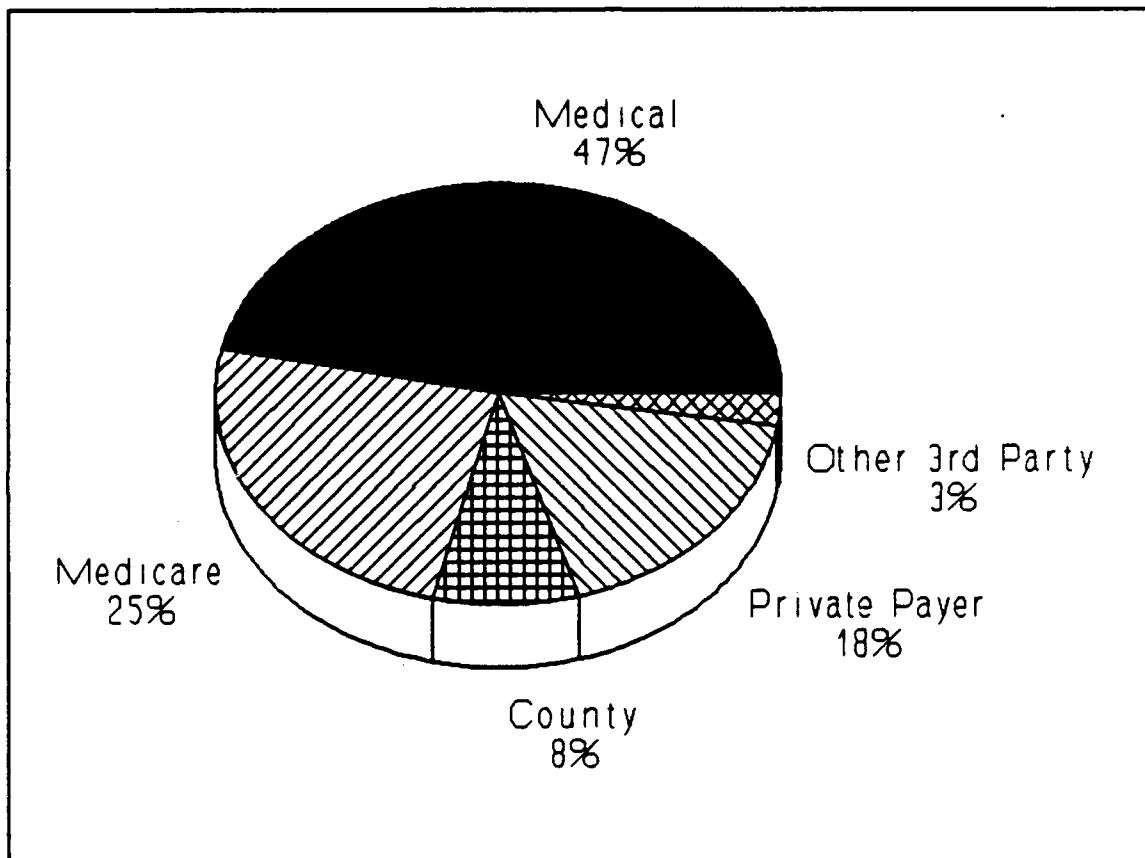


Figure 3. Type and Percentage of HB/SNF Health Care Reimbursement (Source: Office of Statewide Health Planning and Development)

patients who's health care costs are primarily reimbursed by Medicare. The average length of patient care at the remaining SNF's was between 71 and 289 days. The average length of patient stay at Children's Hospital could not be calculated because there were no patients discharged during this time period. A summary of the average length of patient stay for each HB/SNF is shown in Figure 4.

In order to determine if type of health insurance or patient age is a useful predictor of average length of patient stay at a skilled nursing facility, the length of stay on categories of patient health care reimbursement and patient age groups was regressed. Data used is shown in Appendix C and Appendix D. Data from Children's hospital was not used. Data from Mission Bay Memorial Hospital and San Diego County Psychiatric Hospital was also not used. These facilities received reimbursement for patient costs from a single source in 1989. During this period, Mission Bay Memorial Hospital treated only Medicare patients, while patient costs at San Diego County Psychiatric Hospital were reimbursed by local government.

In the analysis, independent variables from Appendix C and Appendix D were used in two separate equations as predictors of length of patient stay at a skilled nursing facility. Data shown in Appendix D summarizes patient age groups as a percentage of total patient population for each of the skilled nursing facilities. In the first equation, five selected variables (Medicare, Medical, other third party insurance, private payer, and

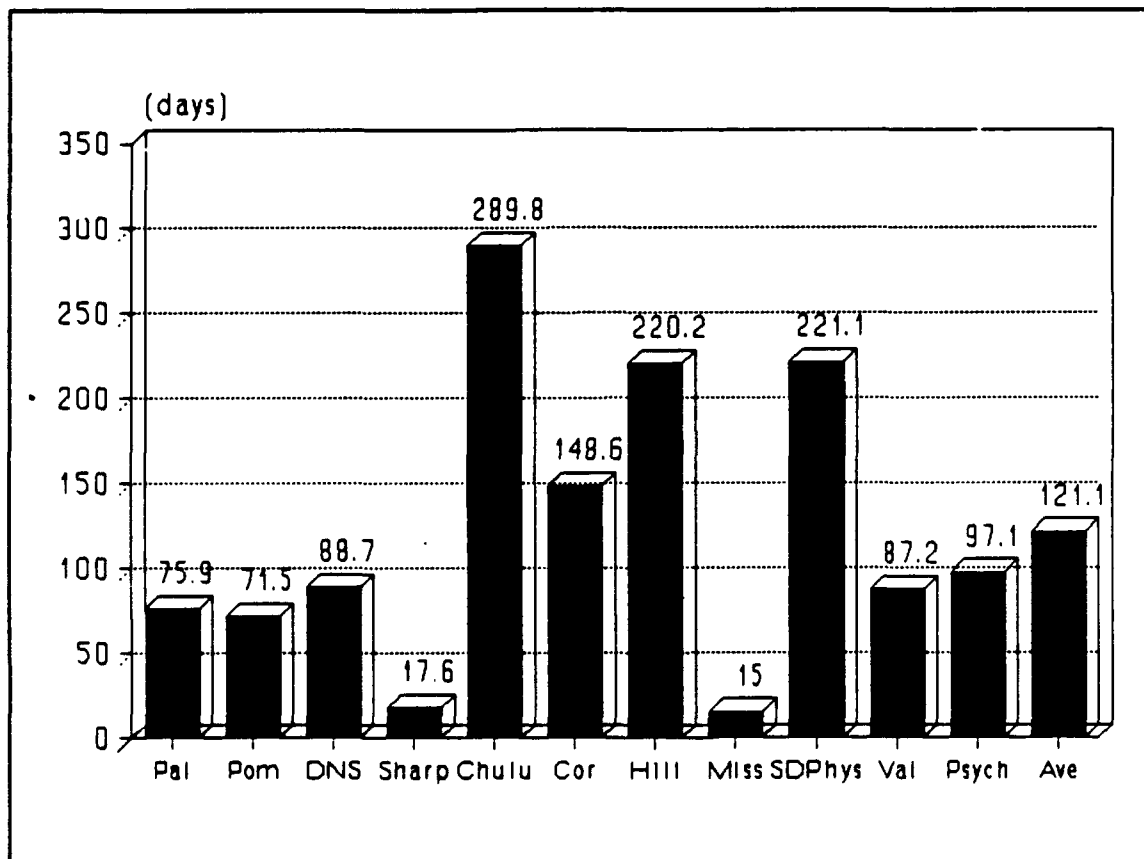


Figure 4. Average Length of HB/SNF Patient Stay (Source: Office of Statewide Health Planning and Development)

county reimbursement) were used in a multiple regression equation, $\text{Length} = 173 - 9.59 \text{ Medicare} + 2.13 \text{ Medical} - 2.89 \text{ Other} + 0.46 \text{ Private} - 3.02 \text{ County}$, as predictors of length of stay. In the second equation, seven selected variables (under 45 years old, 45-54, 55-64, 65-74, 75-84, 85-94, and 95 years and older) were used in a second equation, $\text{Length} = 141 + 3.01 \text{ U45} - 31.7 \text{ 4554} + 28.3 \text{ 5564} - 1.9 \text{ 6574} - 3.7 \text{ 7584} - 10.6 \text{ 8594} + 54.2 \text{ 950}$, as a separate predictor of length of patient stay. The results of these multiple regression equations are shown in Tables III and IV.

Type of health care reimbursement was found to have a strong, highly significant positive impact on length of patient stay ($R\text{-sq} = 78.1\%$) and was significant ($p = 0.05$) at the 0.05 percent level. However, patient age was not useful in predicting length of patient stay. While $R\text{-sq} = 61.5\%$, it was not significant ($p = 0.786$) at the 0.05 percent level.

These results suggest that type of patient health insurance is a very good predictor of the length of time that individuals will spend as inpatients at skilled nursing facilities. In general, patients will remain as patients at health care facilities until their health insurance no longer covers their medical expenses and health care costs.

TABLE III

**MULTIPLE REGRESSION FOR LENGTH OF STAY
BASED ON TYPE OF HEALTH CARE INSURANCE**

Independent Variables	Coef	Stdev	t-ratio	p
Constant	172.65	63.69	2.71	0.035
Medicare	- 9.591	3.800	- 2.52	0.045
Medical	2.126	1.106	1.92	0.103
Other 3rd Party	- 2.892	7.299	- 0.40	0.706
Private Payer	0.462	1.259	0.37	0.726
County Reimbursement	- 3.022	3.772	- 0.80	0.454
S = 69.55				
R-sq = 0.781				
P = 0.052				

Notes: (1) S (standard error of the estimate): Indicates how far the observed y-values are from the predicted y-values, on the average.

(2) R-sq (coefficient of determination): A descriptive measure of how useful the regression equation is for making predictions.

(3) P: The p-value of the hypothesis test.

TABLE IV
MULTIPLE REGRESSION FOR LENGTH OF STAY
BASED ON PATIENT AGE

Independent Variables	Coef	Stdev	t-ratio	p
Constant	140.77	66.44	2.12	0.101
Under 45 Years	3.008	2.433	1.24	0.284
45-54 Years	- 31.67	42.05	- 0.75	0.493
55-64 Years	28.35	40.29	0.70	0.521
65-74 Years	- 1.88	15.69	- 0.12	0.910
75-84 Years	- 3.71	11.45	- 0.32	0.762
85-94 Years	- 10.59	12.13	- 0.87	0.432
95 Years & Older	54.18	37.43	1.45	0.221
S = 113.1				
R-sq = 0.615				
P = 0.572				

- Notes: (1) S (standard error of the estimate): Indicates how far the observed y-values are from the predicted y-values, on the average.
- (2) R-sq (coefficient of determination): A descriptive measure of how useful the regression equation is for making predictions.
- (3) P: The p-value of the hypothesis test.

B. DETERMINATION OF NEED FOR A HOSPITAL-BASED SKILLED NURSING FACILITY

1. Patients Transferred From Naval Hospital, San Diego To Civilian Health Care Facilities

In order to determine if Naval Hospital, San Diego has a need for a skilled nursing facility or unit, patient records for calendar year 1989 were examined. A review of this data, summarized in Appendix E, indicates that a total of 142 patients were transferred to civilian health care facilities in 1989. Comprising the total number of patients transferred were 59 active duty or retired personnel, 32 dependent spouses, 46 dependent children, and 5 paid patients (not eligible for free medical care). A summary of the patients transferred to civilian health care facilities in 1989, categorized by percentage of active duty/retirees, dependent spouses, dependent children, and paid patients is shown in Figure 5.

A recapitulation of the 142 patients transferred by Naval Hospital, San Diego to civilian health care facilities in 1989, categorized by age groups is depicted in Figure 6. A comparison of Figure 6 and Figure 1, Distribution of Total HB/SNF Patients by Age Groups, shows that 68 percent of the patients who received care at civilian HB/SNFs were 65 years or older. In contrast, only 28.8 percent of the patients transferred by Naval Hospital, San Diego to civilian health care facilities were in this age group category, and only 5.6 percent of total patients were admitted to a SNF or nursing home. It appears that in general, Naval Hospital, San Diego provides care for elderly patients until discharge versus

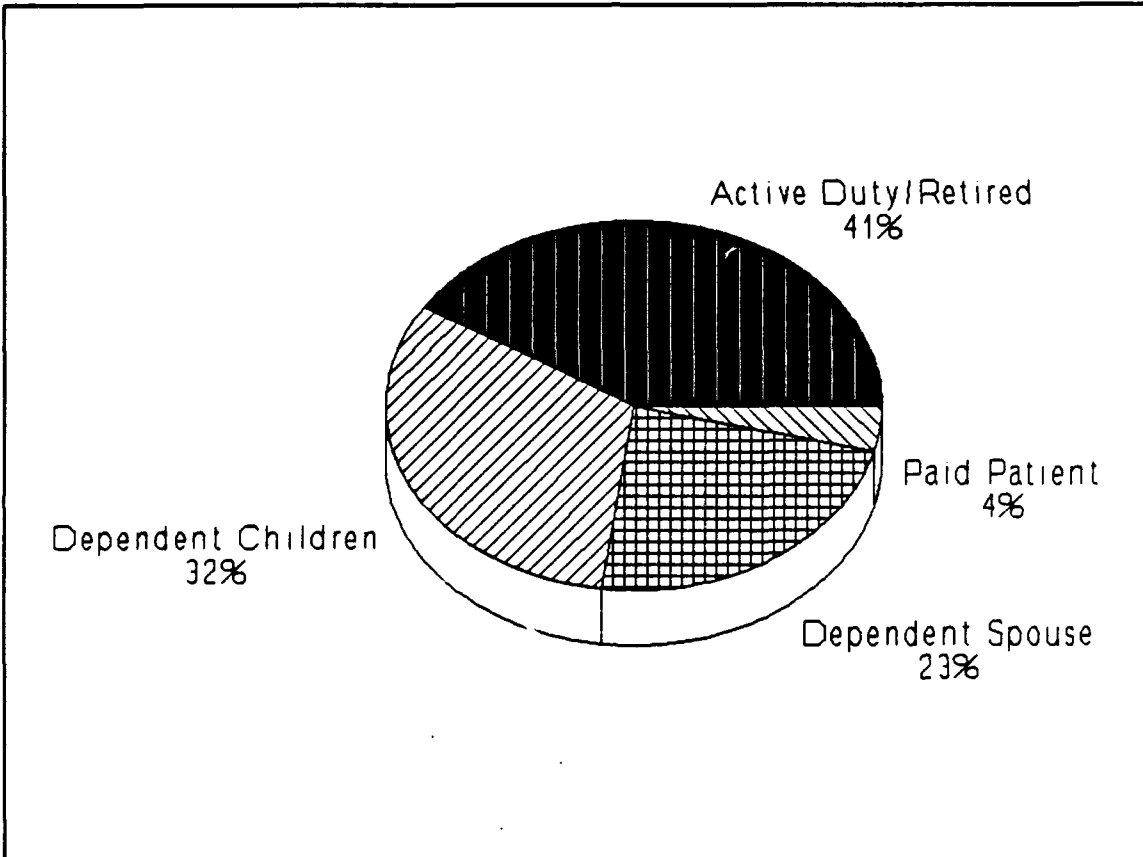


Figure 5. Distribution of Naval Hospital Patients Transferred to Civilian Health Care Facilities (Source: Naval Hospital, San Diego)

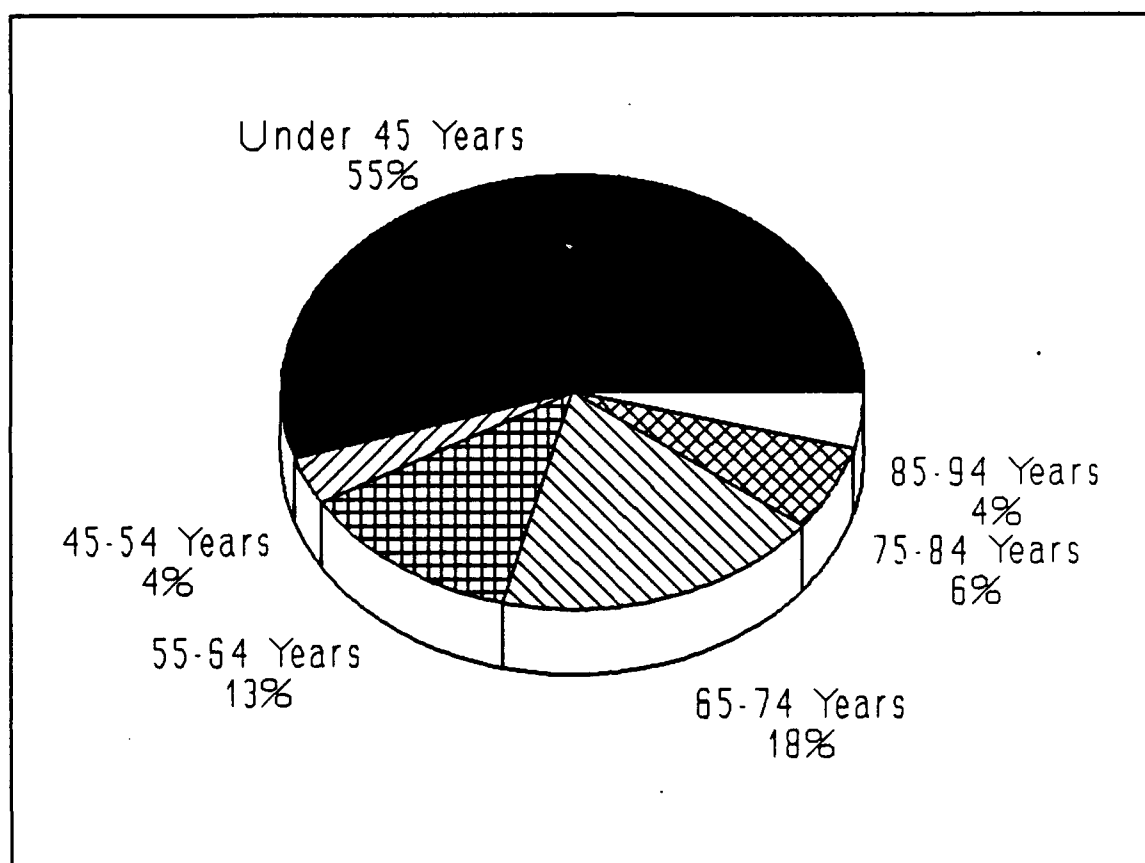


Figure 6. Distribution of Naval Hospital patients Transferred to Civilian Health Care Facilities By Age Groups (Source: Naval Hospital, San Diego)

transferring eligible patients to skilled nursing facilities.

2. Naval Hospital Patients Transferred To Civilian Skilled Nursing Facilities Or Nursing Homes

In order to determine how many of the of the 142 patients transferred to civilian health care facilities were admitted to either a skilled nursing facility or nursing home, the author contacted each hospital-based SNF or nursing home listed in Appendix E. Eight patients received treatment at a skilled nursing facility or nursing home. One patient was discharged home with follow up care to be provided through contracted civilian services. A summary of patients transferred to SNFs or nursing homes in 1989 is shown in Appendix F. Figure 7 depicts total patients admitted to a SNF or nursing home, categorized by percentage of active duty, retired, or dependent spouse personnel. There were no dependent children transferred to SNF's or nursing homes.

The author was unable to determine length of patient stay at these long term care facilities due to the Privacy Act of 1974 which prohibits release of patient information by health care providers. However, data on the average length of patient stay at seven of the eight long term health care facilities which Naval Hospital, San Diego patients were transferred to was available. The average length of patient stay at these facilities were: Beverly Manor Convalescent Hospital (237.2 days), Meadowlark Convalescent Hospital (141 days), Wilson Manor Convalescent Hospital (509.8 days), Saint Paul Health Care Center (222.5 days), California Special Care SNF (124.2 days), Paradise Hills SNF (169.5), and Lemon Grove Convalescent Facility (335.5 days). Data

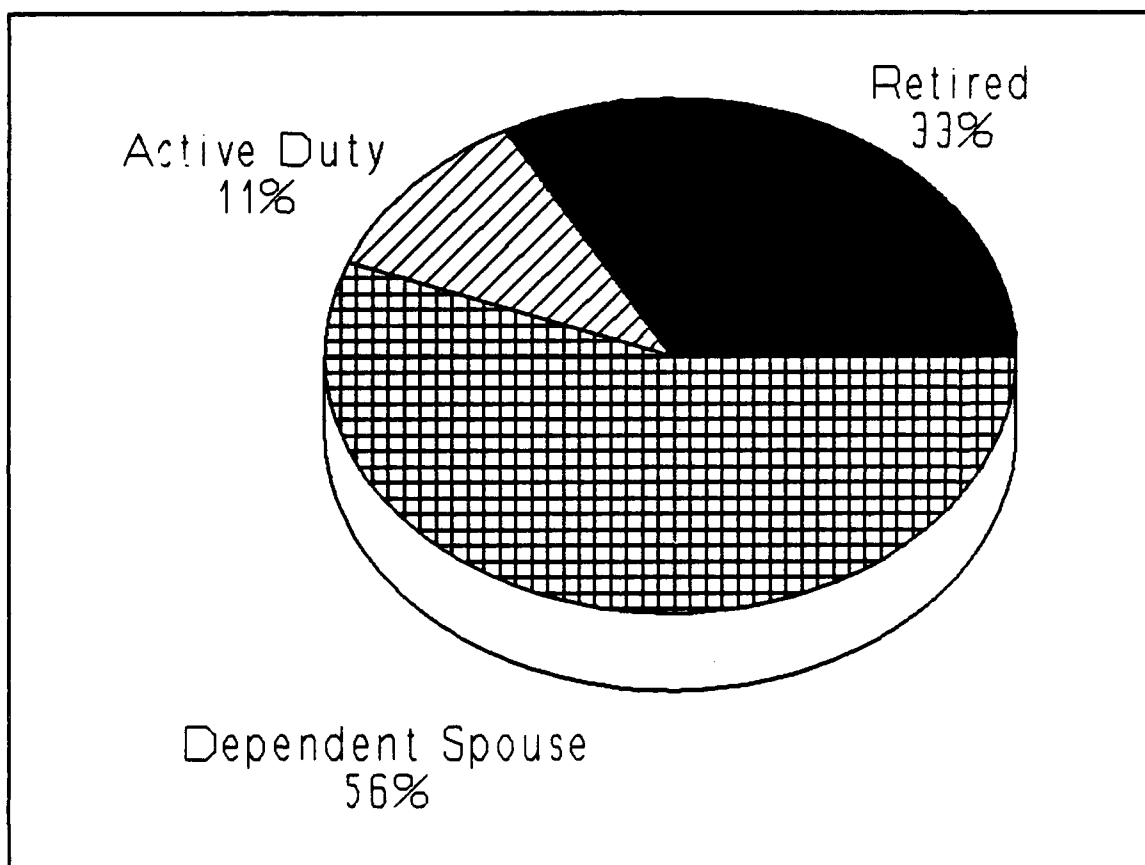


Figure 7. Distribution of Naval Hospital Patients Transferred to a SNF or Nursing Home (Source: Naval Hospital, San Diego)

was not available for the eighth facility, the VA Hospital in La Jolla, CA. A summary of this information is shown in Figure 8.

The average length of stay for patients at these seven health care facilities was 248 days versus 121 days for hospital-based skilled nursing facilities, Figure 4. The longer length of patient stay at these freestanding skilled nursing facilities and convalescent homes is attributed to the type of care provided. These facilities treat more patients with terminal illness and other ailments requiring long term care than do hospital-based skilled nursing facilities.

C.. MANPOWER REQUIREMENTS FOR A HOSPITAL-BASED SKILLED NURSING FACILITY

1. Type And Percent Of Employee Paid Hours

A summary of employee job descriptions and percentage of total hours at nine of the twelve HB/SNF's in San Diego County is shown in Appendix G. This information was obtained from financial disclosure reports provided by individual hospitals to the Office of Statewide Health Planning and Development.

All nine of the HB/SNF's utilized Registered Nurses (RN), Licensed Vocational Nurses (LVN), and Aids/Orderlies. These patient care positions constituted on average, 85 percent of total employee hours. All of the HB/SNF's, except Mission Bay Memorial Hospital and Community Hospital of Chula Vista, employed additional personnel as supervisors or managers; although this group comprised on average only 2.8 percent of total employee hours. Another job position common to all HB/SNF's, except Mission Bay Memorial

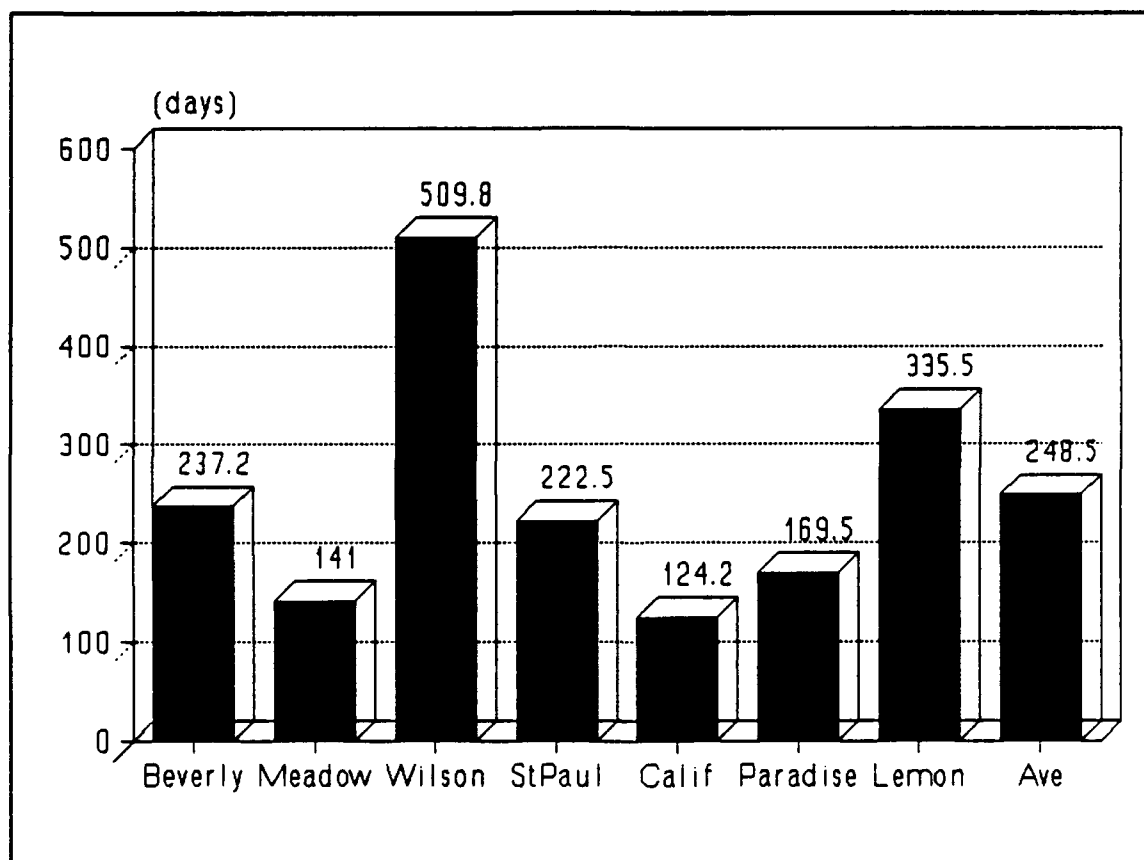


Figure 8. Average Length of Stay of Naval Hospital Patients Transferred to Civilian SNFs or Nursing Homes (Source: Office of Statewide Health Planning and Development)

Hospital, San Diego Physicians and Surgeons Hospital, and Coronado Hospital, was clerical/administrative, which averaged 3.57 percent of total employee hours. It is probable that management and administrative functions at these other facilities were accomplished by nurses or nurse assistants, or by other work centers at the hospital. Because employee salaries, wages, and benefits comprise the majority of HB/SNF expenses they are affected by economies of scale. Therefore, consolidation of management, administration, and patient care functions may have been done to reduce costs. This would have been especially meaningful for Mission Bay Memorial Hospital, which provided care for only 13 patients in 1989. Technical and Specialist services (0.74%), Environmental and Food Service (0.16%), Other Salaries and Wages (0.12%), and Non-productive time (8.01%) comprise the other portions of total employee paid hours. Distribution of total paid employee hours for the nine HB/SNF's, categorized by job description, is shown in Figure 9. In the figure, Environmental and Food Service, Technical and Specialist, and Other Salaries and Wages have been consolidated into one Miscellaneous category.

2. Full Time Employees Per Patient Day

The author determined the ratio of full time employees per patient per day, for each HB/SNF, using data shown in Appendix H. This was done by dividing the number of full-time equivalent employees by units of service provided per day. A summary of total full-time employees per patient day for each HB/SNF is shown in Figure 10. There was an average full-time employee to patient

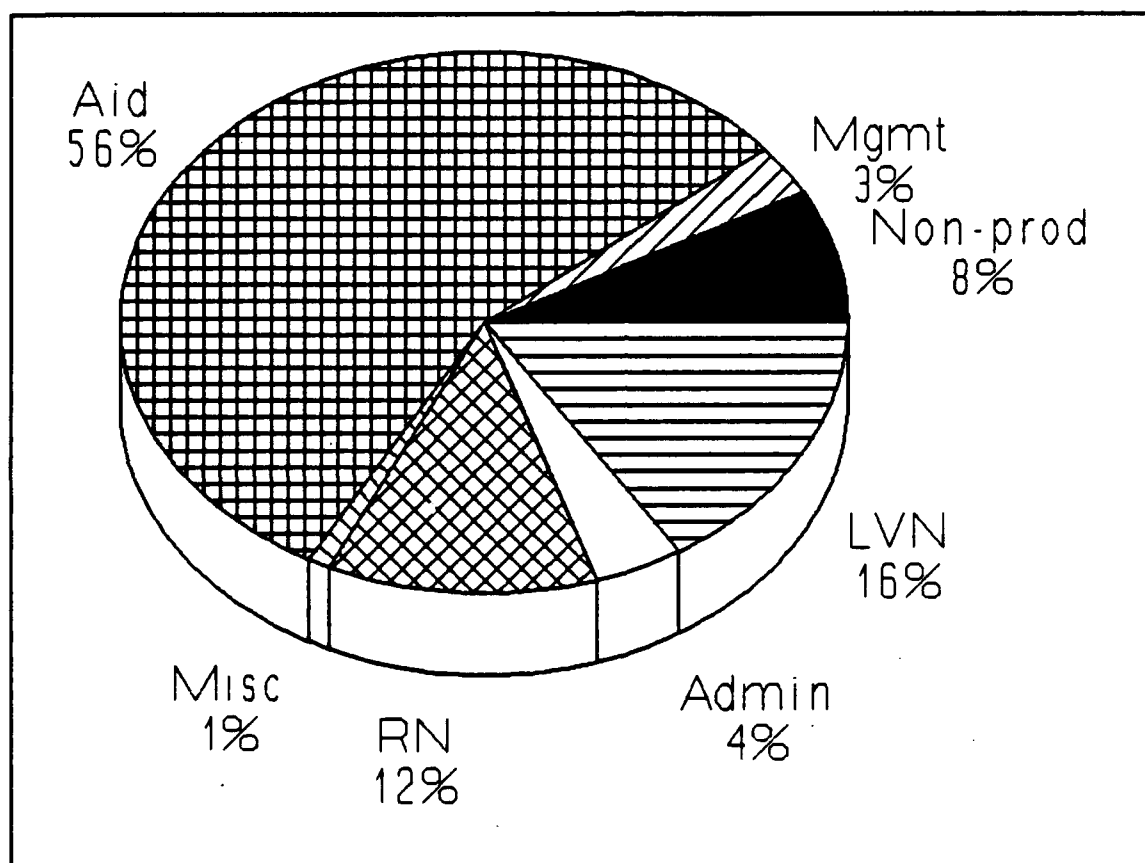


Figure 9. Type and Percentage of Total HB/SNF Employee Paid Hours (Source: Office of Statewide Health Planning and Development)

ratio of 0.8:1 for the nine health care facilities.

3. Comparison of General Acute Care And Skilled Nursing Facility Average Length Of Patient Stay

Average length of Medical/Surgical (general) acute patient care was calculated using data from Appendix I. Review of this data indicates that average length of care at the 11 health care facilities, prior to discharge or transfer to skilled nursing, was 5.81 days. The longest average length of stay was at San Diego Psychiatric Hospital (18.8 days). However, this data was not used to determine average length of general acute patient care because it is unique to psychiatric care. A summary of the average length of general acute patient care at each health care facility is shown in Figure 11.

4. Determination Of Staffing Requirements

In order to determine the staffing requirements for a skilled nursing facility, variables such as patient load, case mix, and average length of patient stay must be known. As previously discussed, examination of patient data indicates that Naval Hospital, San Diego transferred 142 patients to civilian health care facilities in 1989. Of these 142 patients, eight patients received treatment at a skilled nursing facility or nursing home.

However, this figure severely understates the requirement for skilled nursing at Naval Hospital, San Diego, for two reasons. First, due to the Privacy Act of 1974, which prohibits release of patient information by health care providers, it was not possible to determine if more than 8 of the 142 patients transferred to civilian facilities may have ultimately received skilled nursing

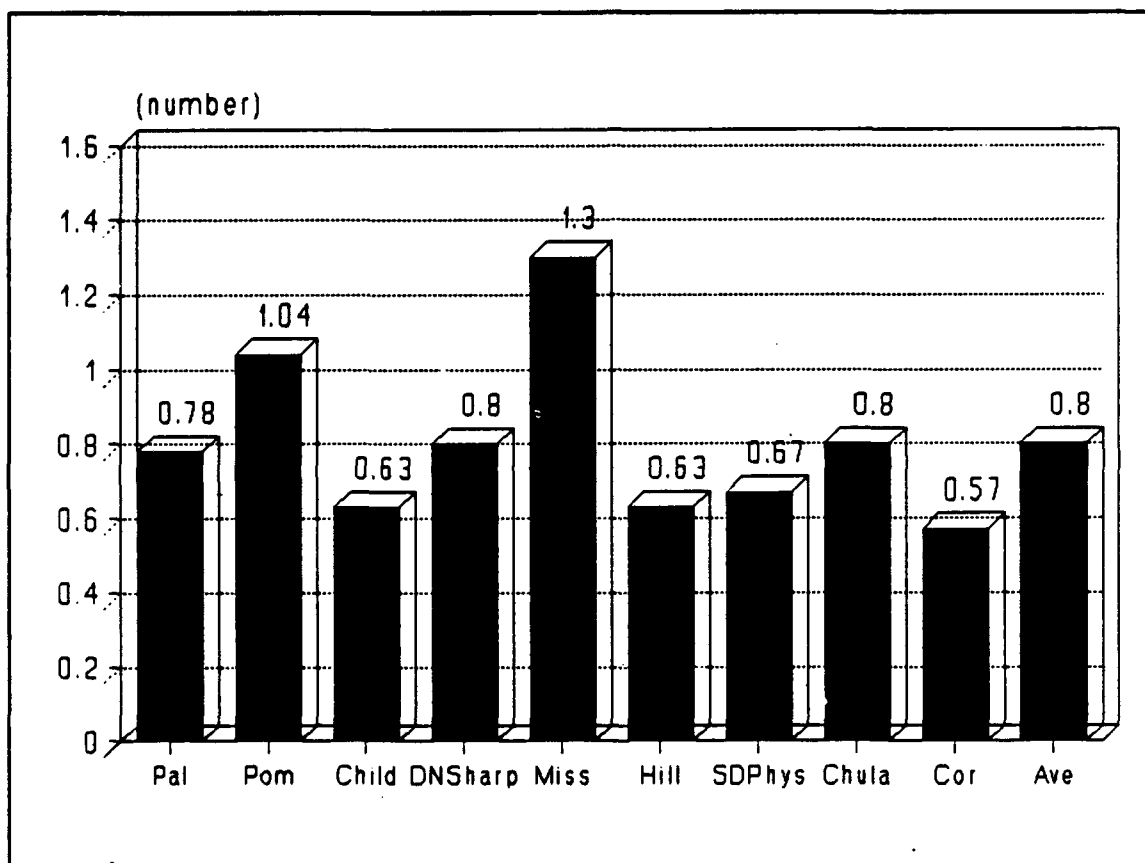


Figure 10. Total HB/SNF Full Time Equivalent Employees Per Patient Day (Source: Office of Statewide Health Planning and Development)

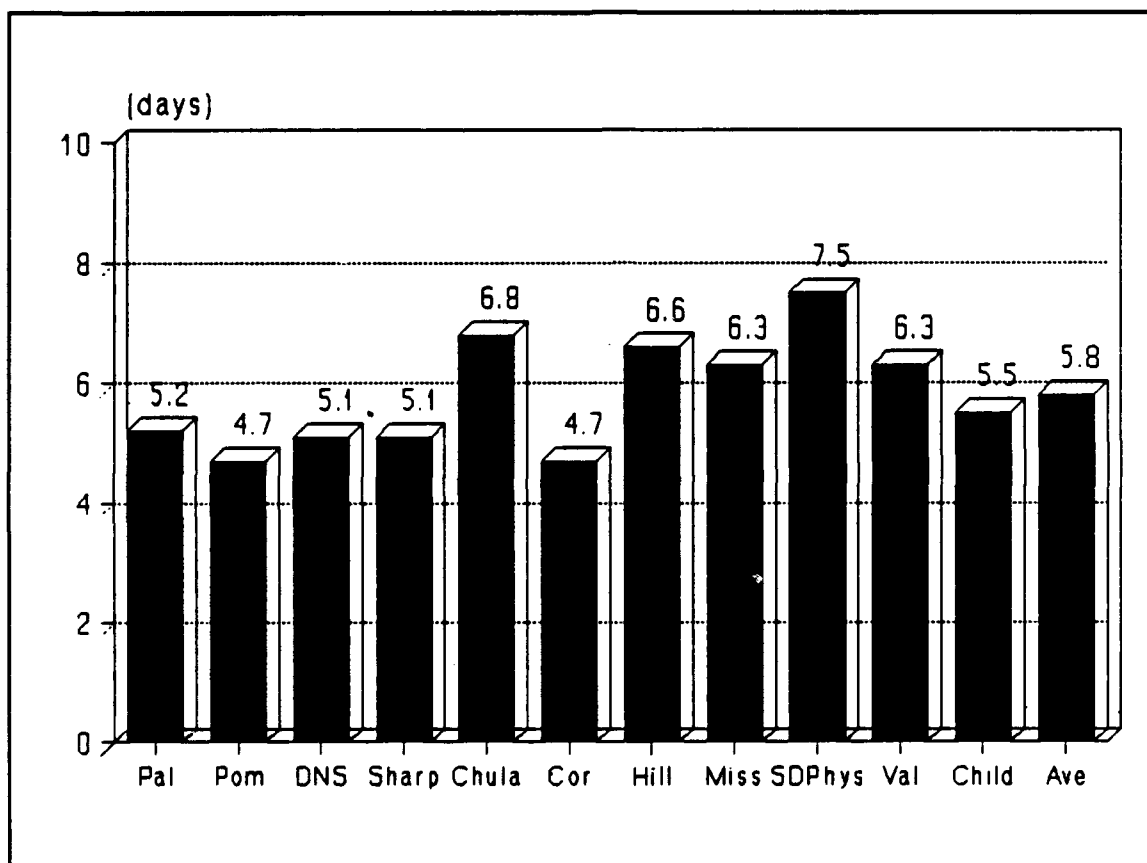


Figure 11. General Acute Patient Care Average Length of Stay
(Source: Office of Statewide Health Planning and Development)

care following receipt of acute care. Second, an estimate of need for skilled nursing based on number of patients transferred to skilled nursing facilities does not consider the undetermined patient population at Naval Hospital who were eligible for transfer from acute care to skilled nursing, had this service been available.

Of the above, the author believes that estimation of the average number of acute care patients at Naval Hospital eligible to receive skilled nursing is the most viable means to determine need. The ideal method to determine need would be for a physician(s) or other qualified personnel to conduct a retrospective chart review. However, since the author was not qualified to do this, an alternate method of determining need will be discussed.

Since hospitals operate skilled nursing facilities as a means of providing appropriate care to eligible patients at lower costs, it is probable that the majority of patients at a HB/SNF received initial acute care at that same hospital. Using the alternate method, calculating the ratio of acute care patients to skilled nursing patients provides an estimate of need. The ratio of General Acute Care units of service to Skilled Nursing units of service was derived using data from Appendices J and K. The average ratio of Medical/Surgical acute care units of service to Skilled Nursing units of service for nine health care facilities was 1.14:1. The ratio of general acute care to skilled nursing at Children's Hospital was unusually high 14.13:1, since very few children receive skilled nursing care. Instead, most post acute

care patients receive intermediate care, and only the sickest children are admitted to the SNF. However, the ratio of general acute care to long term care (consisting of both intermediate and skilled care) 1.54:1 is more representative of the other health care facilities. A summary of the ratios for nine health care facilities is shown in Figure 12.

To estimate the requirement for skilled nursing, a comparison was made between the average ratio of medical/surgical acute care to skilled nursing at civilian facilities, to Naval Hospital inpatient data for fiscal year 1989. This data is shown in Appendix L. However, there was not a direct association between categorization of services by Naval Hospital, San Diego and the civilian health care facilities. Naval Hospital inpatient data, shown in Appendix M, was subdivided into more specialty areas than was the data from the civilian health care facilities, provided in Appendix L.

To correlate the data, Naval Hospital patient services that constitute general acute care must be used as a means of comparison. These patient services are Internal Medicine, Infectious Disease, Cardiology, Endocrinology, Gastroenterology, Hematology/Oncology, Nephrology, Neurology, Pulmonary/ Respiratory/ Chest, General Surgery, Cardiothoracic Surgery, Vascularly Surgery, Neurosurgery, and Urology.

Naval Hospital, San Diego provided a total of 60,892 patient days of general acute care in 1989. An estimate of the requirement for skilled nursing beds at Naval Hospital can be

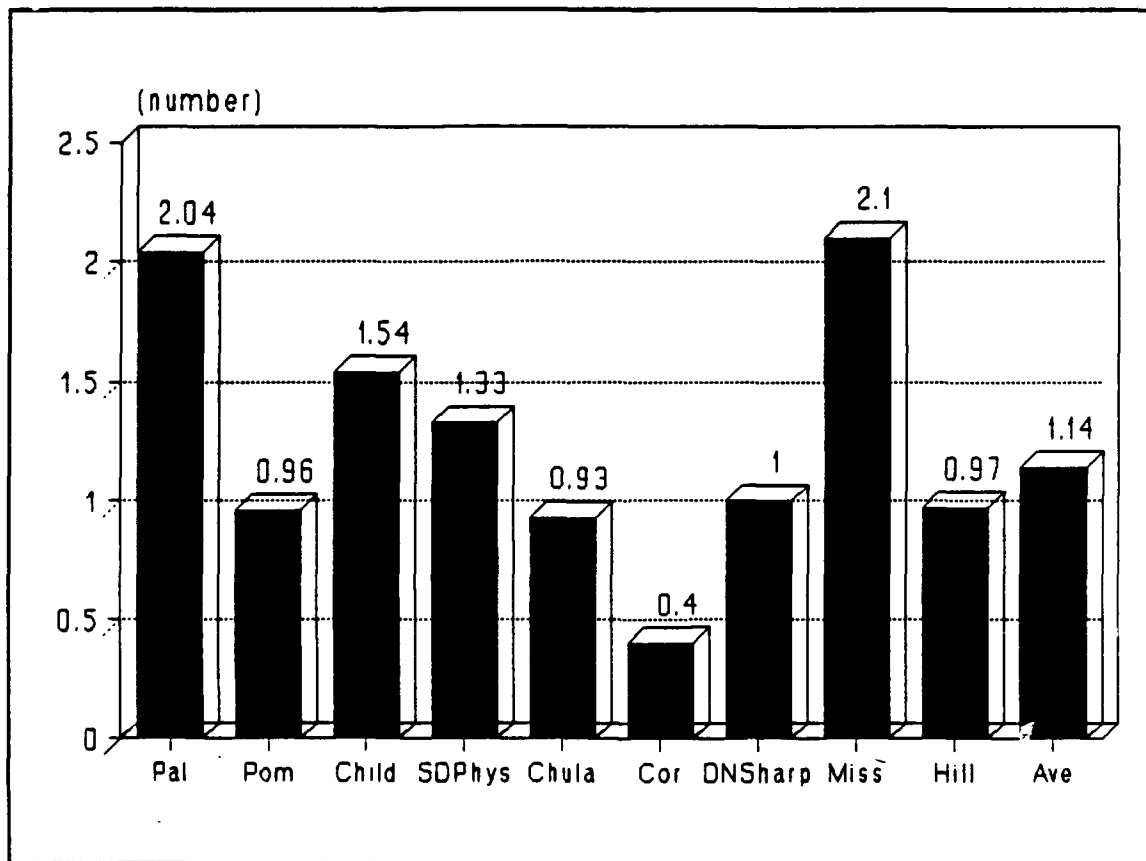


Figure 12. Ratio of Medical/Surgical Acute Care to Skilled Nursing Care (Source: Office of Statewide Health Planning and Development)

determined by comparing the average civilian health care facility ratio of general acute care to skilled nursing care with the total number of general acute care patient days at Naval Hospital. These calculations, $1/1.14 \times 60,892 = 53414$ (total SNF patient days), $53414/365$ (days in a year) = 146.3, indicate a requirement for 146 skilled nursing beds.

As a second means to determine the requirement for skilled nursing beds at Naval Hospital, San Diego, the author used the average ratio of total beds to skilled nursing beds at nine civilian health care facilities in San Diego County. Data from Appendix N was used to compute the ratios of total beds to skilled nursing beds shown in Figure 13.

Naval Hospital, San Diego provided 127,787 total adult patient days of care in 1989. By dividing total adult patient days by number of days in a year, the average number of patients per day (350 in 1989) can be derived. Applying the ration of total beds to skilled nursing beds (Figure 13) to average number of total patients per day yields the requirement for skilled nursing beds. These calculations, $1/2.2 \times 350 = 159$, indicate a requirement for 159 skilled nursing beds.

These two separate surrogate estimates of the requirement for skilled nursing beds (146 and 159), based on civilian health care facility data, are not significantly different. However, there are other factors which must be considered in estimating the required size of a skilled nursing facility at Naval Hospital, San Diego. These considerations will be discussed in greater detail

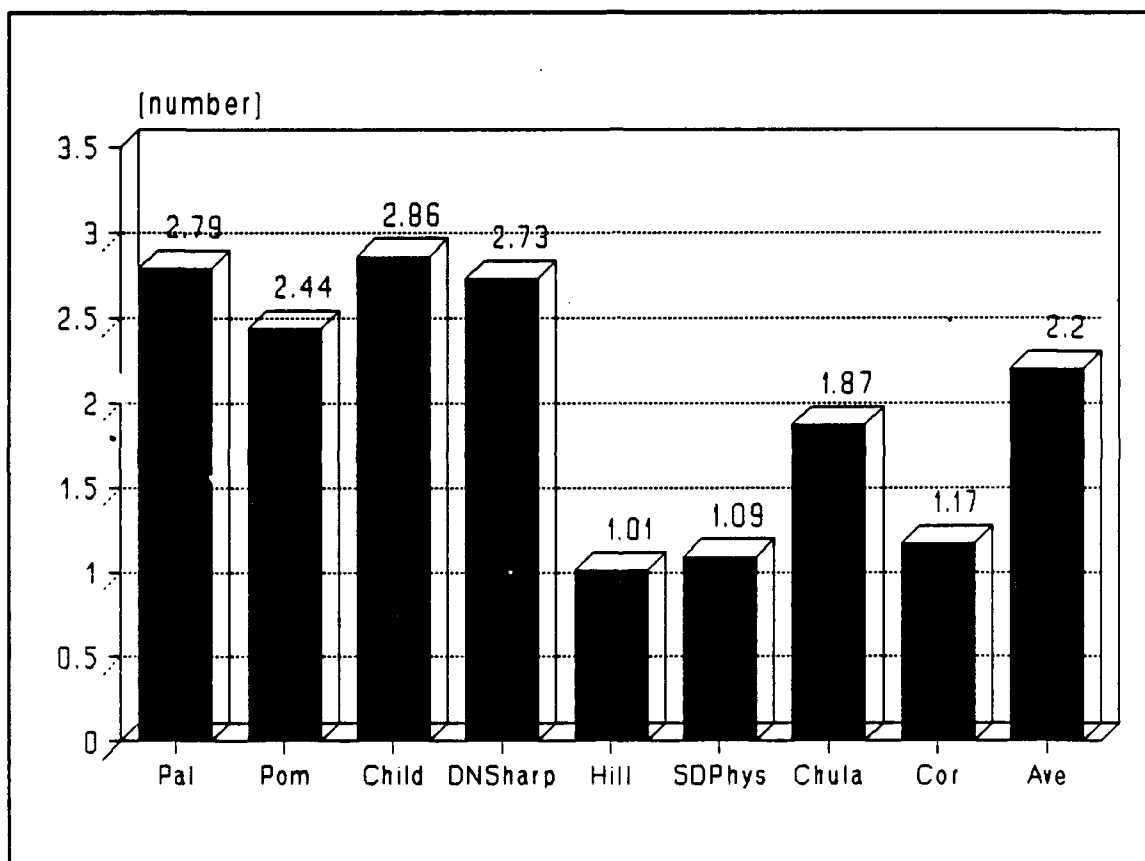


Figure 13. Ratio of Total Beds to Skilled Nursing Beds
(Source: Office of Statewide Health Planning and Development)

later in this study.

D. HOSPITAL-BASED SKILLED NURSING FACILITY OPERATING EXPENSES

1. Type And Proportion Of Direct Expenses

A listing of type and amount of operating expenses for the nine HB/SNF's is summarized in Appendix J. A categorization and average percentage of routine costs is shown in Figure 14. The categories of Compensation Paid (0.16%), Reclassification of Physician and Student Compensation (0.06%), Purchased Services (0.41%), and Leases and Rentals (0.49%) have been consolidated into one miscellaneous grouping in the Figure.

2. Categorization Of Expenses By Ownership

Direct expenses per patient day were the lowest at skilled nursing facilities owned and operated by nonprofit corporations. In contrast, daily operating costs were highest at the for-profit HB/SNF's. It is not surprising that facilities owned and operated for profit reported higher expenses considering the Medicare policy of reimbursing HB/SNF's at 112 percent of mean costs plus 50 percent of the difference between the mean cost of freestanding and hospital-based skilled nursing facilities. (Sulvetta, 1986) Similarly, Medical reimburses SNFs based on average cost of the facility, up to a ceiling. For HB/SNF's payment is the lesser of costs as projected by the Department of Health Services or the prospective median rate. The prospective median rate is \$209.35 per patient day for facilities with fewer than 121 beds and \$209.70 for facilities with 122 beds or more. (DHS, 1991)

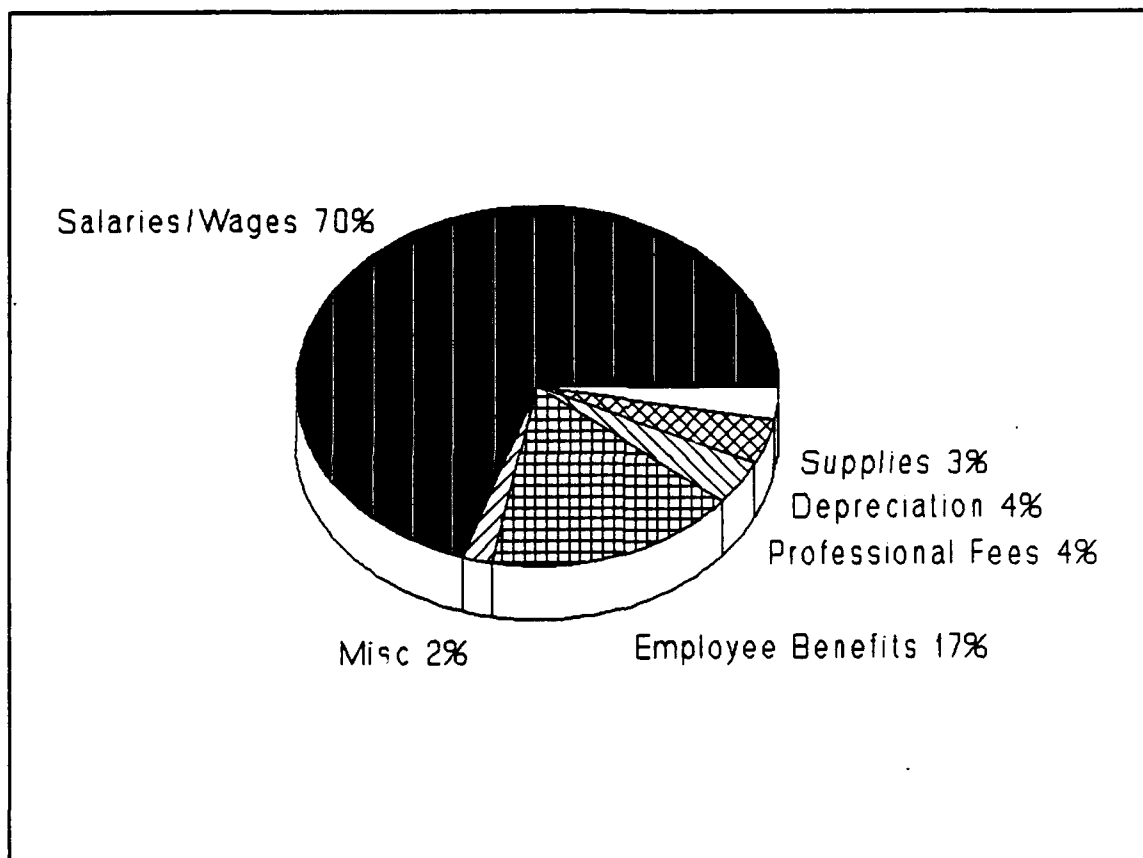


Figure 14. Type and Percentage of HB/SNF Operating Expenses
(Source: Office of Statewide Health Planning and Development)

3. Average Employee Wage Rates Per Hour

A summary of employee wage rates at each HB/SNF, categorized by job description, is provided in Appendix O. Average hourly wage rates were highest for Management Personnel and Supervisors (\$16.96), followed by in ascending order: Registered Nurses (\$16.14), Technical and Specialists (\$14.38), Licensed Vocational Nurses (\$11.09), Environmental and Food Service (\$8.69), Administrative and Clerical (\$7.64), Other Salaries and Wages (\$7.48), and Aids/Orderlies (\$7.40). A recapitulation of average hour wage rates for the nine HB/SNF's is displayed in Figure 15.

4. Comparison Of General Acute Care And Skilled Nursing Facility Expenses

To determine the potential cost savings of a skilled nursing facility, the author compared the cost of providing general (medical/surgical) acute care with the expense of operating a skilled nursing facility/unit. A synopsis of general acute care expenses for nine hospitals, with skilled nursing facilities, is provided in Appendix K. A categorization and average percentage of routine costs is shown in Figure 16.

A comparison of percentage of total operating expenses by category between skilled nursing and Medical/Surgical acute care show little variation. For these cost centers the percentage of total cost for each category of operating expense, is shown in Figures 14 and 16. The only appreciable differences were that Salaries and Wages (70.7% to 67.1%) and Depreciation (3.9% to 2.2%) comprised a greater percentage of HB/SNF total expenses. In contrast, Medical/Surgical acute care expended a greater percentage

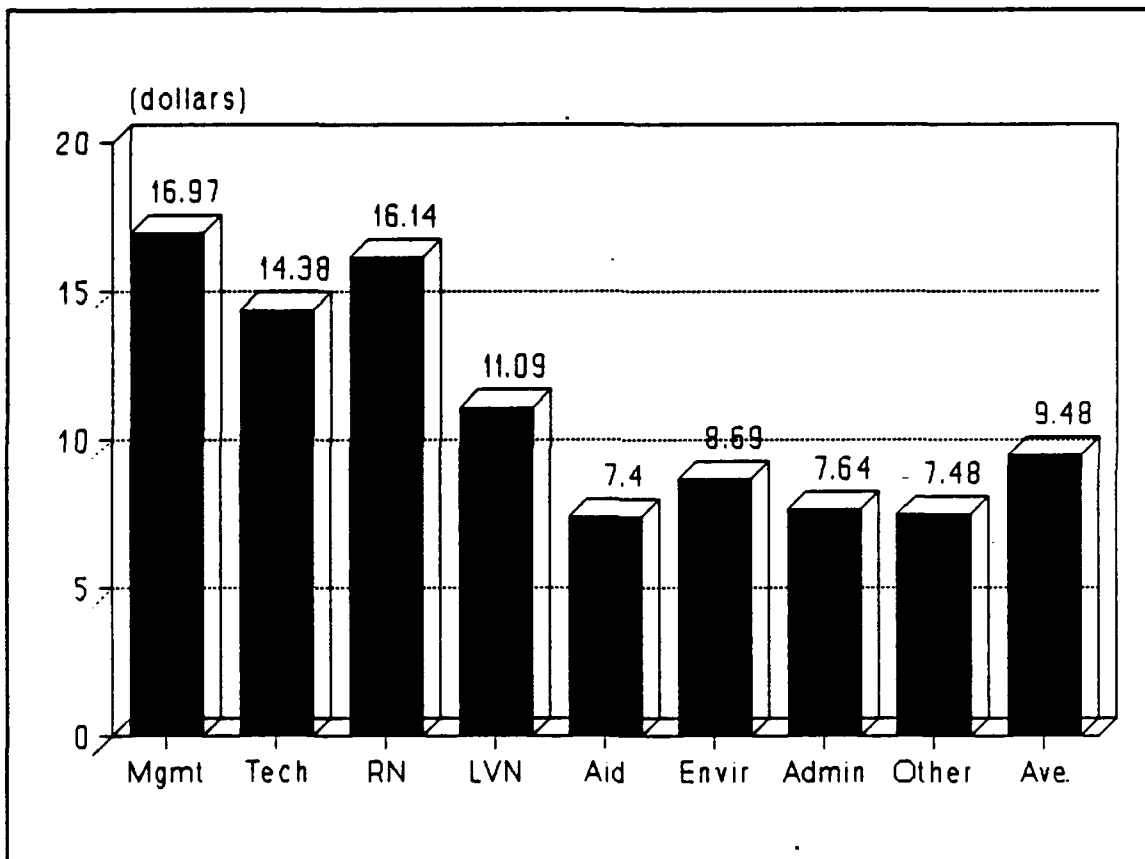


Figure 15. Average HB/SNF Employee Wage Rates Per Hour
(Source: Office of Statewide Health Planning and Development)

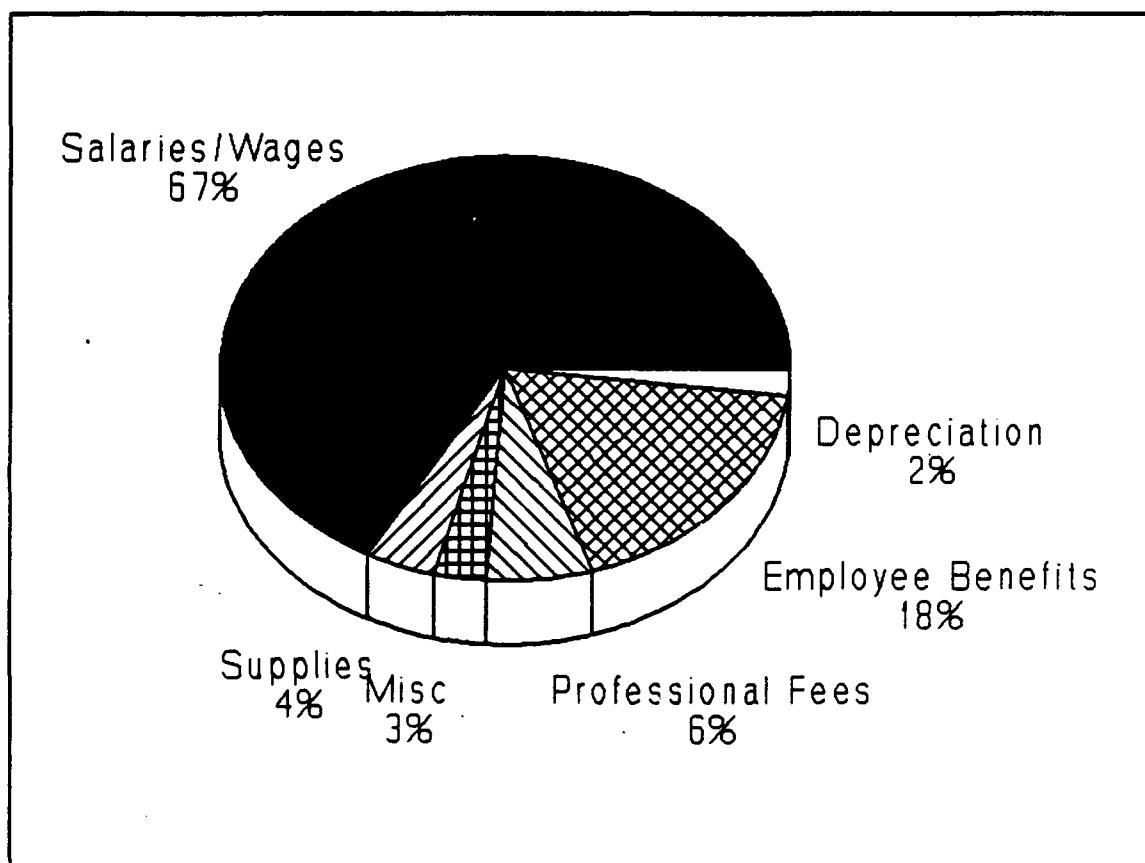


Figure 16. Type and Percentage of Medical/Surgical Acute Care Operating Expenses (Source: Office of Statewide Health Planning and Development)

of total costs for Professional Fees (5.7% to 3.5%) and Supplies (3.8% to 3.4%). The combined percentage of Salaries/Wages, and Employee Benefits, the largest components of total expense, are similar for skilled nursing (87.3%) and general acute care (84.8%).

5. Comparison Of General Acute Care And Skilled Nursing Facility Full Time Employees Per Patient Day

A comparison of the general acute care (Figure 17) and skilled nursing employee to patient ratios (Figure 10) reveal a greater number of employees per acute care patient (1.52:1) than skilled nursing patient (0.8:1) at the nine health care facilities. This is not surprising since civilian hospitals implemented SNFs as a means of providing less costly sub-acute care to patients who no longer require acute care, but are not yet able to care for themselves at home without assistance.

6. Comparison Of General Acute Care And Skilled Nursing Employee Paid Hours

The lower health care costs associated with skilled nursing come from smaller employee to patient ratios and by use of less expensive personnel. Comparing the type and percentage of total general acute care (Figure 18) and HB/SNF (Figure 9) employee paid hours demonstrates that although Registered Nurses account for 54.7 percent of total general acute care employee hours, they constitute only 12.5 percentage of total HB/SNF employee hours. Thus, while general acute care utilizes a greater proportion of Registered Nurses, skilled nursing provides less costly sub-acute care by greater use of Licensed Vocational Nurses (16.18% to 10.04%) and Aids/Orderlies (55.96% to 11.70%). Additional savings are realized

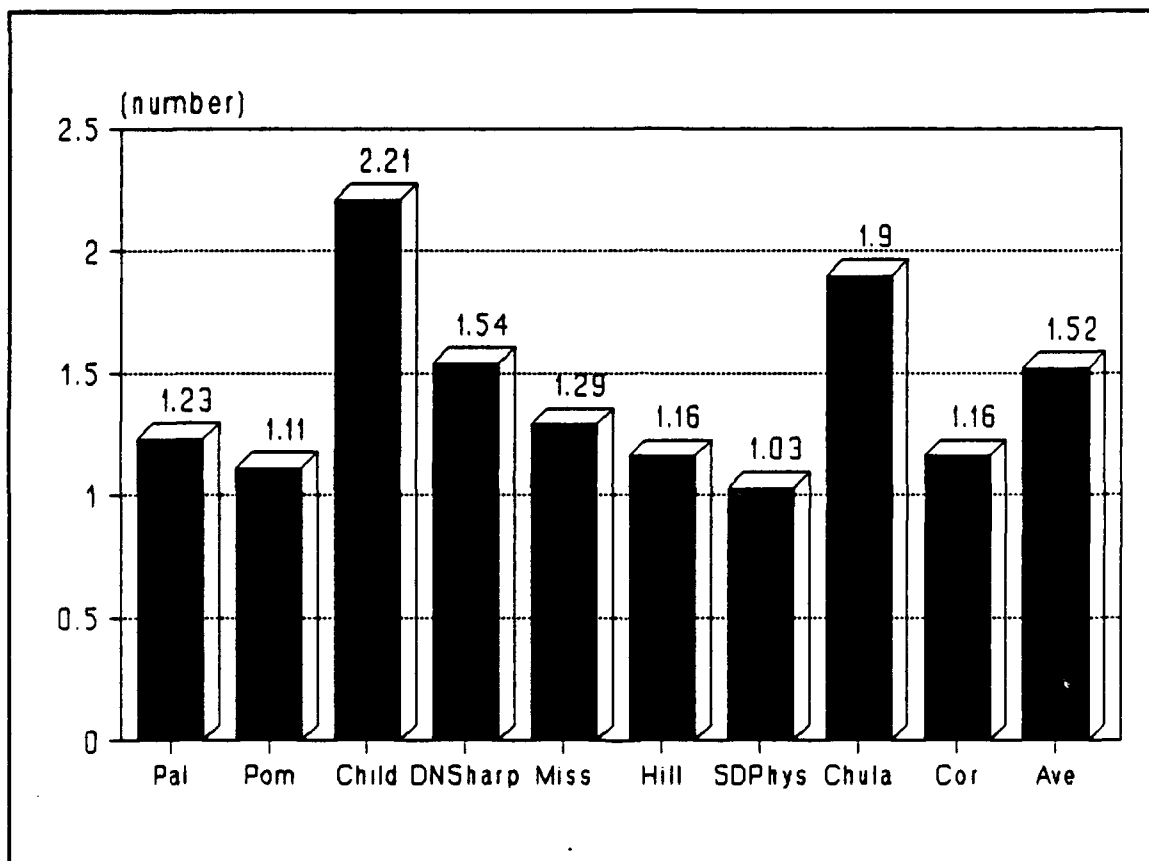


Figure 17. Total General Acute Care Full Time Equivalent Employees Per Patient Day (Source: Office of Statewide Health Planning and Development)

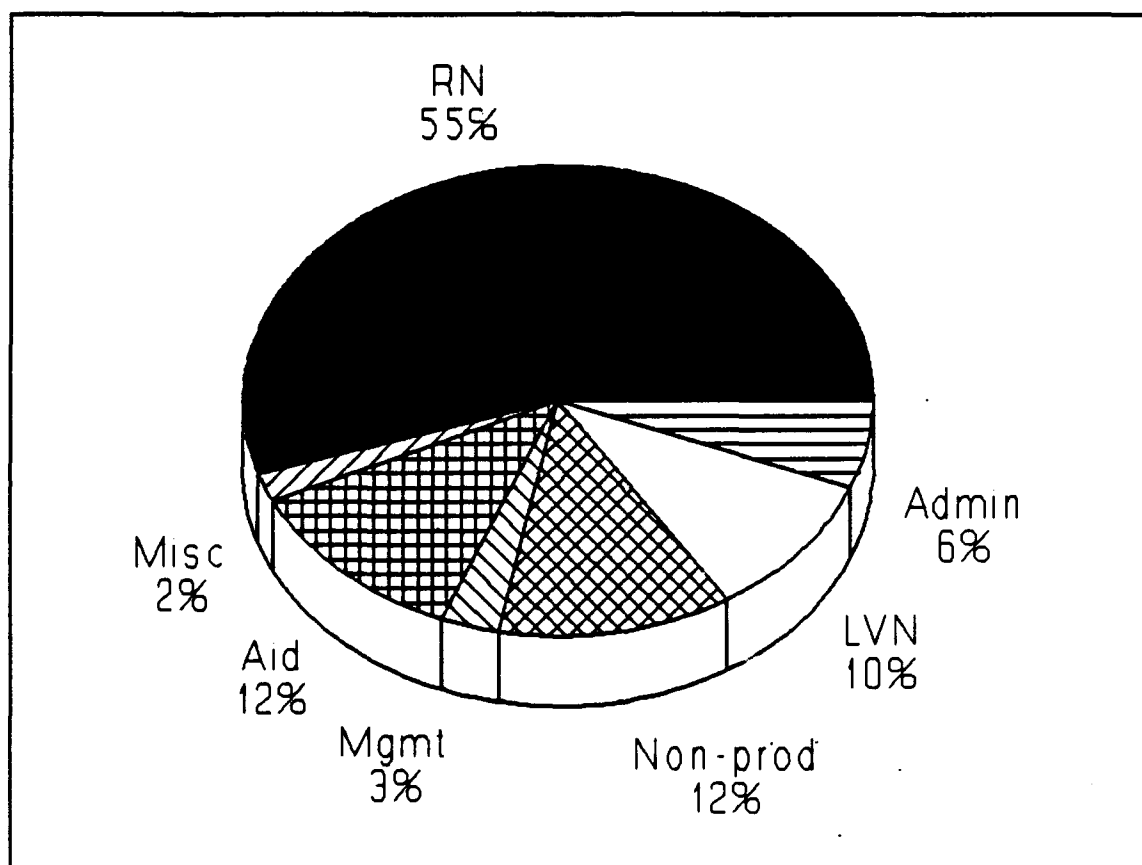


Figure 18. Type and Percentage of Total General Acute Care Employee Paid Hours (Source: Office of Statewide Health Planning and Development)

in skilled nursing non-direct patient care areas: Management/Supervision (2.80% to 3.19%), Clerical/Administrative (3.57% to 6.47%), Miscellaneous (1.02% to 2.19%), and Non-productive Time (8.02% to 11.7%).

In addition to the cost savings accrued through use of smaller employee to patient ratios and less expensive staffing (e.g., a greater use of Licensed Vocational Nurses and Aids/Orderlies in lieu of Registered Nurses), skilled nursing employees were paid lower average wage rates than were general acute care employees. Examination of general acute care (Figure 19) and HB/SNF (Figure 15) wage rates show that average wage rates were higher for general acute care employees than for skilled nursing employees in all categories: Management/Supervision (\$20.51 to \$16.96), Technical/Specialist (\$14.74 to \$14.38), Registered Nurses (\$16.58 to \$16.14), Licensed Vocational Nurses (\$11.58 to \$11.09), Aid/Orderlies (\$8.80 to \$7.40), Environmental/Food Service (\$9.43 to \$8.69), Clerical/Administrative (\$9.33 to \$7.64), and Other Wages and Salaries (\$7.61 to \$7.48). Overall, the average employee wage rate at the nine health care facilities was \$14.66 for general acute care versus \$9.48 for skilled nursing, a difference of \$5.18 per hour.

E. COST SAVINGS ASSOCIATED WITH IMPLEMENTATION OF SKILLED NURSING CARE

There was a 21.1 percent increase in the consumer price index (CPI) for medical care between April 1989 (the median month of fiscal disclosure reports used in this study) and August 1991 (the

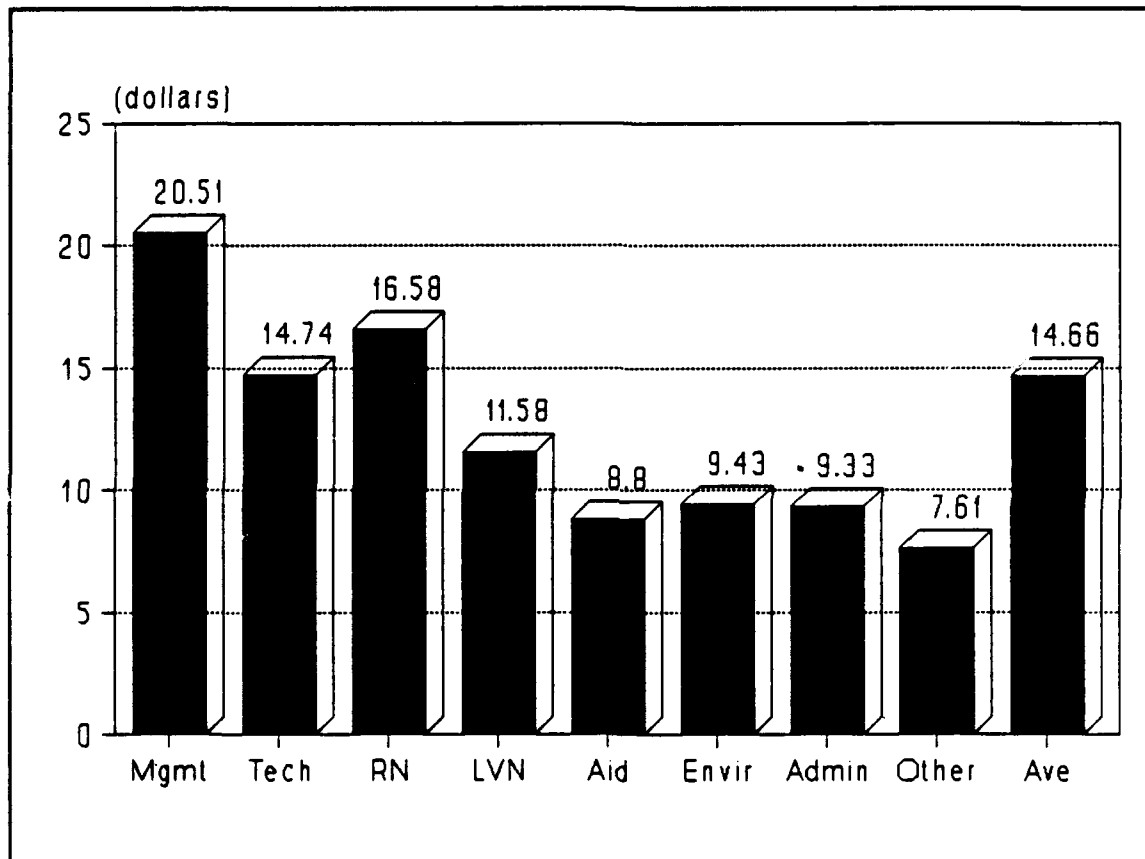


Figure 19. Average General Acute Care Employee Wage Rates Per Hour (Source: Office of Statewide Health Planning and Development)

most recently computed CPI). Consequently, fiscal estimates based on 1989 data have been computed using "August 1991 dollars" in order to accurately reflect recent increases in cost of health care.

Comparison of the average cost per unit of acute care and skilled nursing at nine civilian hospitals in San Diego County in 1989 indicate that utilization of a 37-bed skilled nursing facility would a yield potential savings of \$1,647,230.80 (1991 dollars) in patient care. Detailed calculations are provided in Appendix T. Provision of skilled nursing, in lieu of acute care, for sub-acute patients resulted in an overall savings of 60 percent in the cost of patient care. These savings were realized primarily through a reduction in the cost of personnel salaries/wages and employee benefits associated with acute care. Detailed calculations are shown in Appendix Q.

F. STAFFING REQUIRED TO OPERATE A 37-BED SKILLED NURSING FACILITY

The recommended staffing for a 37-bed SNF at Naval Hospital, San Diego based on the convention of local hospital-based skilled nursing facilities is as follows:

1. Eight hour shifts.

<u>Days</u>	<u>Evenings</u>	<u>Nights</u>
1-RN	1-RN	1-RN
1-LVN	1-LVN	1-LVN
6-Nurses Aids	6-Nurses Aids	6-Nurses Aids
1-Ward Clerk		

2. Twelve hour shifts.

<u>Days</u>	<u>Nights</u>
1-RN	1-RN
1-LVN	1-LVN
6-Nurses Aids	6-Nurses Aids
1-Ward Clerk	

This watch bill portrays one means to provide staffing, considering the salary/wage constraints that civilian facilities face. Actual staffing requirements would be determined by the Director of Nursing based on patient occupancy rates and patient case mix. Additionally, there would be more staff personnel assigned to the day shift than to evening or night shifts. Detailed calculations are shown in Appendix T. As a point of comparison, average acute care staffing at these same hospitals is depicted below:

<u>Days</u>	<u>Evenings</u>	<u>Nights</u>
7-RN's	7-RN's	7-RN's
2-LVN's	2-LVN's	2-LVN's
2-Nurses Aids	2-Nurses Aids	2-Nurses Aids
1-Ward Clerk	1-Ward Clerk	1-Ward Clerk

G. ESTIMATION OF THE COST TO OPERATE A SKILLED NURSING FACILITY

It was not possible to determine current patient care costs at Naval Hospital, San Diego since unit costing is not used. Unit costing, an accounting method used by civilian businesses, refers to the practice of allocating all expenses, including both direct and indirect costs, to units of output (in this case patients), in order to determine the total costs affiliated with each unit. This is a common practice among for-profit organizations where net income is the bottom line. In contrast, Naval Commands receive annual budgets which are then dispensed to individual Departments/

Divisions to expend. However, there is typically no requirement to allocate costs to final output.

Since a detailed analysis of operating costs at Naval Hospital, San Diego was not possible, an estimation of the daily operating expenses for a 37-bed SNF was made based on average expenditures of similar civilian health care facilities. More detailed calculations are provided in Appendix T.

<u>37-bed SNF</u> <u>Expenditure Category</u>	<u>Costs Per Day</u> <u>(1991 dollars)</u>
Salaries/Wages	\$2106.07
Employee Benefits	509.18
Supplies	101.86
Depreciation	116.84
Professional Fees	104.85
Miscellaneous	<u>56.92</u>
Total costs per day	\$2995.83

H. COST SAVINGS REALIZED THROUGH PROVISION OF SKILLED NURSING CARE TO CHAMPUS PATIENTS

Since Naval Hospitals operate as non-profit organizations, substantial savings in patient care costs could be realized by furnishing skilled nursing care to prospective CHAMPUS patients in Naval hospitals. This would eliminate the profit component of reimbursement that civilian health care facilities currently receive for providing this service.

The Department of Defense (DOD) policy on CHAMPUS reimbursement to health care providers is similar to that of Medicare or Medicaid. However, the amount of reimbursement is determined on a case-by-case basis versus use of a set payment schedule.

The average net daily revenue per unit of service paid by Medicare and Medical to nine Hospital-based skilled nursing

facilities in San Diego County in 1989 was \$80.39 and \$55.68 respectfully. The potential annual savings which could be accrued from Naval care of CHAMPUS patients can be determined by taking an average of the Medicare and Medical rates and multiplying this figure by the average number of patients and by the number of days in a year. For an arbitrarily chosen number of ten patients, estimated annual savings would be \$300,702.80 (1991 dollars).

Greater cost savings are possible through provision of Navy skilled nursing to sub-acute patients than through recapture of CHAMPUS patients. However, reduction in CHAMPUS costs is a high priority within the Department of Defense. While potential savings of \$121.97 (1991 dollars) per unit could be realized by providing Navy skilled nursing care for sub-acute patients, only \$82.38 (1991 dollars) per unit would be recovered by the DOD through treatment of the CHAMPUS patients that are currently referred to civilian hospitals. However, CHAMPUS patients could be admitted to Naval facilities in sufficient quantities to use excess capacity. Naval provision of care for CHAMPUS patients will be particularly important if unit-costing comes to fruition since fiscal resources will then be obtained based on output (number of patients) versus an annual budget.

V. SUMMARY, RECOMMENDATIONS, IMPLICATIONS, AND CONCLUSIONS

A. SUMMARY

This study was conducted to determine whether it would be cost-beneficial for Naval Hospital, San Diego to open a skilled nursing facility (SNF)/unit. The four primary purposes of this study were: (1) to determine if there is a need for skilled nursing, (2) calculate the manpower requirements to staff a skilled nursing facility/unit, (3) ascertain the cost to operate a skilled nursing facility/unit, and (4) determine facility requirements.

The review of literature focused on background issues that provide an incentive for hospitals to operate skilled nursing facilities. The differences between skilled nursing and nursing home care were discussed. The criteria for admission to a skilled nursing facility were described. The fiscal benefits to hospitals that operate their own skilled nursing facilities was examined. It was noted that hospital-based skilled nursing facilities treat a more intensive case mix than do freestanding skilled nursing facilities. Medicare and Medical health insurance programs were characterized. Skilled nursing facility expenditure categories and percentage of total cost were depicted. And lastly, skilled nursing facility requirements, the need for skilled nursing care at Navy hospitals, and utilization of skilled nursing care by dependent and retired personnel were addressed.

The setting for this study was the twelve hospital-based skilled nursing facilities located in San Diego County in 1989. The

method of data collection was via a historical records collection research. Information was obtained from financial disclosure records provided by individual hospitals to the California Office of Statewide Health Planning and Development and from data furnished by Naval Hospital, San Diego.

B. RECOMMENDATIONS

Based on the findings of this study, the following recommendations have been made:

1. Open a 37-bed skilled nursing facility (unit) at Naval Hospital, San Diego as a means to reduce acute patient care costs.

2. Utilize the skilled nursing unit at Naval Hospital, San Diego as a pilot program to determine: (1) actual cost of providing skilled nursing care in a military treatment facility, and (2) identify factors that affect patient load, and thus determine the applicability of skilled nursing care to other Naval Health Care Facilities. These factors should include:

- a. Size and mission of Health Care Facility
- b. Case mix of patients
- c. Categorization of patients by age groups
- d. Utilization rate of facility
- e. Demand for skilled nursing in local market
- f. Demographics of patient population - total number and percentage of active duty, dependent, and retired personnel in local community

C. IMPLICATIONS

The findings of this study have implications for Naval Hospital, San Diego, as well as for other Naval Health Care Facilities. Through utilization of skilled nursing facilities, health care providers are able to give appropriate sub-acute care to those patients who no longer require more expensive acute care, yet are not fit for discharge.

As discussed below, an estimation of the requirement for skilled nursing at Naval Hospital, San Diego, based on the number of patients transferred to civilian skilled nursing facilities, would be erroneous and understate the need. Whereas, an assessment based solely on the practices of local hospitals would overstate the need for skilled nursing and would also be inaccurate. While Naval Hospital, San Diego transferred 142 patients to civilian health care facilities in 1989, only eight patients received treatment at a skilled nursing facility or nursing home. However, this figure severely understates the requirement for skilled nursing at Naval Hospital, San Diego for two reasons. First, the Privacy Act of 1974 prohibits release of patient information by health care providers. Thus, it was not possible to determine if the other 134 patients, transferred to civilian acute care facilities, later received skilled nursing care. Second, an estimate of need for skilled nursing, based on number of patients transferred to skilled nursing facilities, does not consider the undetermined patient population who were eligible for consignment from acute care to skilled nursing at Naval hospital had this

service been available.

Another means of estimating need is to compare the number of general acute care patient days with the number of skilled nursing patient days provided by local hospitals in order to derive a ratio of general acute care to skilled nursing care. Applying this ratio (1.14:1) to total number of general acute care patient days at Naval Hospital, San Diego indicates a requirement for 146 skilled nursing beds.

However, these calculations probably overstate the need for skilled nursing because (1) Naval Hospital, San Diego provides treatment for a younger patient population than does similar civilian hospitals and (2) Naval Hospital, San Diego already utilizes a 25-bed light care unit, which satisfies part of the need for less costly sub-acute care. In view of the difficulty in determining the exact requirement for skilled nursing beds, Naval Hospital, San Diego should open a moderately sized skilled nursing unit. Hospital Ward 2 West which has 37 beds, is currently unused and would therefore be ideal for this purpose. Following is a depiction of the ward:

- Five private rooms with a single bed each
- Fifteen semi-private rooms with two beds each
- Two isolation rooms with a single bed each
- A Day room, which could be used for a patient dining room/lounge
- A Nursing lounge

Since this fully equipped functional ward already exists, opening

a skilled nursing unit would not require capital investment or depreciation expenses, plus start-up costs would be minimal.

There was a 21.1 percent increase in the consumer price index (CPI) for medical care between April 1989 (the median month of fiscal disclosure reports used in this study) and August 1991 (the most recently computed CPI). Consequently, fiscal estimates based on 1989 data have been computed using "August 1991 dollars" in order to accurately reflect recent increases in cost of health care.

Comparison of the average cost per unit of acute care and skilled nursing at nine civilian hospitals in San Diego County in 1989 indicate that utilization of a 37-bed skilled nursing facility would yield a potential savings of \$1,647,230.80 (1991 dollars) in patient care. Detailed calculations are provided in Appendix T. These cost savings are made possible through utilization of smaller employee-to-patient ratios and less expensive staffing.

The recommended staffing for a 37-bed SNF at Naval Hospital, San Diego based on the convention of local hospital-based skilled nursing facilities is as follows:

1. Eight hour shifts.

<u>Days</u>	<u>Evenings</u>	<u>Nights</u>
1-RN	1-RN	1-RN
1-LVN	1-LVN	1-LVN
6-Nurses Aids	6-Nurses Aids	6-Nurses Aids
1-Ward Clerk		

2. Twelve hour shifts.

<u>Days</u>	<u>Nights</u>
1-RN	1-RN
1-LVN	1-LVN
6-Nurses Aids	6-Nurses Aids
1-Ward Clerk	

Detailed calculations are shown in Appendix T. As a point of comparison, average acute care staffing at these same hospitals is depicted below:

<u>Days</u>	<u>Evenings</u>	<u>Nights</u>
7-RN's	7-RN's	7-RN's
2-LVN's	2-LVN's	2-LVN's
2-Nurses Aids	2-Nurses Aids	2-Nurses Aids
1-Ward Clerk	1-Ward Clerk	1-Ward Clerk

Analysis of financial data from the nine hospitals indicates that provision of skilled nursing, in lieu of acute care, for sub-acute patients resulted in an overall savings of 60 percent in the cost of patient care in 1989. These savings were realized primarily through a reduction in the cost of personnel salaries/wages and employee benefits associated with acute care. Detailed calculations are shown in Appendix Q.

It was not possible to determine current patient care costs at Naval Hospital, San Diego since unit costing is not used. Unit costing is an accounting method used by civilian businesses and recently implemented by DOD for health care. It refers to the practice of allocating all expenses, including both direct and indirect costs, to units of output (in this case patients) in order to determine the total costs affiliated with each unit. This is a common practice among for-profit organizations where net income is

the bottom line. In contrast, Naval Commands receive annual budgets which are then allocated to individual Departments/Divisions to expend. However, there is typically no requirement to allocate costs to final output.

Since a detailed analysis of operating costs at Naval Hospital, San Diego was not possible, an estimation of the daily operating expenses for a 37-bed SNF was made based on average expenditures of similar civilian health care facilities. More detailed calculations are provided in Appendix T.

<u>37-bed SNF</u> <u>Expenditure Category</u>	<u>Costs Per Day</u> <u>(1991 dollars)</u>
Salaries/Wages	\$2106.07
Employee Benefits	509.18
Supplies	101.86
Depreciation	116.84
Professional Fees	104.85
Miscellaneous	<u>56.92</u>
Total costs per day	\$2995.83

Since Naval Hospitals operate as non-profit organizations, substantial savings in patient care costs could be realized by furnishing skilled nursing care to prospective CHAMPUS patients. This would eliminate the profit component of reimbursement that civilian health care facilities currently receive for providing this service.

The Department of Defense (DOD) policy on CHAMPUS reimbursement to health care providers is similar to that of Medicare or Medicaid. However, the amount of reimbursement is determined on a case-by-case basis versus use of a set payment schedule.

The average net daily revenue per unit of service paid by Medicare and Medical to nine Hospital-based skilled nursing

facilities in San Diego county in 1989 was \$80.39 and \$55.68 respectfully. The potential annual savings which could be accrued from treatment of CHAMPUS patients can be determined by taking an average of the Medicare and Medical rates and multiplying this figure by the average number of patients and by the number of days in a year. For an arbitrarily chosen number of ten patients, estimated annual savings would be \$300,702.80 (1991 dollars).

Greater cost savings are possible through provision of skilled nursing to sub-acute patients than through recapture of CHAMPUS patients. However, reduction in CHAMPUS costs is a high priority within the Department of Defense. While potential savings of \$121.97 (1991 dollars) per unit could be realized by providing skilled nursing care for sub-acute patients, only \$82.38 (1991 dollars) per unit would be recovered by the DOD through treatment of the CHAMPUS patients that are currently referred to civilian hospitals. However, CHAMPUS patients could be admitted in sufficient quantities to use excess capacity. Providing care for CHAMPUS patients will be particularly important if unit-costing comes to fruition since fiscal resources will then be obtained based on output (number of patients) versus an annual budget.

D. CONCLUSIONS

Naval Hospital, San Diego should open a skilled nursing facility (unit) in existing facilities located at the hospital. Utilization of a 37-bed SNF in conjunction with the 25-bed light care unit that already exists will enable the Hospital to provide appropriate but less costly care to sub-acute patients.

This study conducted during the eve of diminishing fiscal resources identifies cost savings applicable to Naval Hospital, San Diego with potential applicability to other Naval health care facilities. Although this study has identified the need for, as well as related cost savings associated with the implementation of skilled nursing care at one Naval Hospital, the study is insufficient in scope to be used as a basis for determination of Navy policy. Therefore, a skilled nursing unit should be established at Naval Hospital, San Diego as a pilot program to evaluate the potential for utilization of skilled nursing at other Naval health care facilities.

APPENDIX A

PROFILE OF HOSPITAL-BASED SKILLED NURSING FACILITIES LOCATED IN SAN DIEGO COUNTY, CALENDAR YEAR 1989

Hospital	Owner- ship	Reimburse- ment	Num- ber	%	Age	Num- ber	%
Palomar Medical Center	Pub- licly Owned	Total	84	100.0	Total	97	100.0
		MEDICARE	18	21.4	Under45	7	8.3
		MEDICAL	58	69.1	45-54	1	1.2
		Oth 3rd	7	8.3	55-64	4	4.8
		Private	1	1.2	65-74	14	16.7
					75-84	34	40.4
					85-94	22	26.2
					95&over	2	2.4
Pomerado Hospital	Pub- licly Owned	Total	72	100.0	Total	72	100.0
		MEDICARE	14	19.4	Under45	8	11.1
		MEDICAL	30	41.7	45-54	1	1.4
		Private	28	38.9	55-64	4	5.6
					65-74	11	15.2
					75-84	19	26.4
					85-94	25	34.7
					95&over	4	5.6
Child- ren's Hospital	Non prof Corp	Total	55	100.0	Total	55	100.0
		MEDICAL	51	92.8	Under45	55	100.0
		Oth 3rd	2	3.6			
		Private	2	3.6			
Donald N. Sharp Memorial	Non prof Corp	Total	155	100.0	Total	155	100.0
		MEDICARE	19	12.2	Under45	4	2.6
		MEDICAL	57	36.8	45-54	1	0.6
		Oth 3rd	16	10.3	55-64	7	4.5
		Private	63	40.7	65-74	31	20.0
					75-84	50	32.3
					85-94	52	32.3
					95&over	10	33.5
Sharp Cabrillo	Non prof Corp	Total	26	100.0	Total	26	100.0
		MEDICARE	22	84.6	Under45	1	3.8
		MEDICAL	2	7.7	55-64	2	7.7
		Oth 3rd	2	7.7	65-74	6	23.1
					75-84	9	34.6
					85-94	8	30.8

(Source: Office of Statewide Health Planning and Development)

APPENDIX A (CONTINUED)

**PROFILE OF HOSPITAL-BASED SKILLED NURSING FACILITIES
LOCATED IN SAN DIEGO COUNTY, CALENDAR YEAR 1989**

Hospital	Owner- ship	Reimburse- ment	Num- ber	%	Age	Num- ber	%
Comm Hospital of Chula Vista	Non Prof Corp	Total MEDICARE MEDICAL Private	96 10 52 34	100.0 10.4 54.2 35.4	Total Missing Data	96	100.0
Coronado Hospital	Non Prof Corp	Total MEDICARE MEDICAL Private	47 3 7 37	100.0 6.4 14.9 78.7	Total 65-74 75-84 85-94 95&over	47 4 21 17 5	100.0 8.5 44.7 36.2 10.6
Hillside Hospital	Oth Non Prof	Total MEDICARE MEDICAL Private	32 1 30 1	100.0 3.1 93.8 3.1	Total Under45 45-54 55-64 65-74 75-84 85-94 95&over	32 3 2 5 10 8 3 1	100.0 9.4 6.2 15.6 31.3 25.0 9.4 3.1
Mission Bay Memorial Hospital	Prof Corp	Total MEDICARE	13 13	100.0 100.0	Total 65-74 75-84 85-94	13 1 9 3	100.0 7.7 69.2 23.1
San Diego Phys and Surgeons Hospital	Prof Corp	Total MEDICARE MEDICAL Private	79 3 70 6	100.0 3.8 88.6 7.6	Total Under45 45-54 55-64 65-74 75-84 85-94 95&over	79 13 10 13 13 16 10 4	100.0 16.4 12.7 16.4 16.4 20.3 12.7 5.1
Valley Medical Center	Prof Corp	Total MEDICARE MEDICAL Private	34 12 20 2	100.0 35.3 58.8 5.9	Total Under45 45-54 55-64 65-74 75-84 85-94	34 11 6 5 2 6 4	100.0 32.4 17.6 14.7 5.9 17.6 11.8

(Source: Office of Statewide Health Planning and Development)

APPENDIX A (CONTINUED)

**PROFILE OF HOSPITAL-BASED SKILLED NURSING FACILITIES
LOCATED IN SAN DIEGO COUNTY, CALENDAR YEAR 1989**

Hospital	Owner-	Reimburse-	Num-	%	Age	Num-	%
	ship	ment	ber			ber	

SD Cnty	Cnty	Total	25	100.0	Total	25	100.0
Psych		Other	25	100.0	Under45	25	100.0
Hospital							

(Source: Office of Statewide Health Planning and Development)

APPENDIX B

PROFILE OF HOSPITAL-BASED SKILLED NURSING FACILITIES LOCATED IN SAN DIEGO COUNTY, CALENDAR YEAR 1989

Hospital	Ownership	Cen- sus	Licensed Beds	Patient Days	Dis- crgs	Licensed Bed Dys	Occup Rate
Palomar	Public	84	96	29617	390	35040	84.5
Pomerado	Public	72	149	23383	327	54385	43.0
Child- rens	Nonprofit	8	8	2290	0	2494	91.8
Donald N. Sharp	Nonprofit	155	166	57589	649	60590	95.0
Sharp Cabrillo	Nonprofit	26	28	4261	242	4004	106.4
Chula Vista	Nonprofit	96	98	35937	124	35770	100.5
Coronado	Nonprofit	47	51	17390	117	18615	93.4
Hillside	Nonprofit	32	33	9471	43	10128	93.5
Mission	Profit	13	26	5897	394	9490	62.1
SD Phys & Surg	Profit	79	109	32723	148	39785	82.2
Valley	Profit	34	35	5928	68	12775	46.4
SD Cnty Psych	County	25	34	3789	39	5440	69.7

(Source: Office of Statewide Health Planning and Development)

APPENDIX C

SOURCES OF HB/SNF PATIENT HEALTH CARE REIMBURSEMENT

Hospital	MCARE	MCAL	Other 3rd	Pri- vate	County	Length Of Stay	Occup Rate
Palomar	21.4	69.1	8.3	1.2	0.0	75.9	84.5
Pomerado	19.4	41.7	0.0	38.9	0.0	71.5	43.0
Child- rens	0.0	92.8	3.6	3.6	0.0	*	91.8
Donald N. Sharp	12.2	36.8	10.3	40.7	0.0	88.7	95.0
Sharp	84.6	7.7	7.7	0.0	0.0	17.6	106.4
Comm Hospital	10.4	54.2	0.0	35.4	0.0	289.8	100.5
Coronado	6.4	14.9	0.0	78.7	0.0	148.6	93.4
Hillside	3.1	93.8	0.0	3.1	0.0	220.2	93.5
Mission	100.0	0.0	0.0	0.0	0.0	15.0	62.1
San Diego	3.8	88.6	0.0	7.6	0.0	221.1	82.2
Valley	35.3	58.8	0.0	5.9	0.0	87.2	46.4
County Psych	0.0	0.0	0.0	0.0	100.0	97.1	69.7

(Source: Office of Statewide Health Planning and Development)

* Average length of patient stay at Children's Hospital could not be determined because they did not discharge any patients in 1989.

APPENDIX D

CATEGORIZATION OF HB/SNF PATIENTS BY AGE GROUPS

Hospital	Under 45Yrs	45- 54	55- 64	65- 74	75- 84	85- 94	95 & Over	Length Of Stay
Palomar	8.3	1.2	4.8	16.7	40.4	26.2	2.4	75.9
Pomerado	11.1	1.4	5.6	15.2	26.4	34.7	5.6	71.5
Child- ren's	100.0	0.0	0.0	0.0	0.0	0.0	0.0	*
Donald N. Sharp	2.6	0.6	4.5	20.0	32.3	32.3	33.5	88.7
Sharp	3.8	0.0	7.7	23.1	34.6	30.8	0.0	17.6
Comm Hos	**	**	**	**	**	**	**	289.8
Coronado	0.0	0.0	0.0	8.5	44.7	36.2	10.6	148.6
Hillside	9.4	6.2	15.6	31.3	25.0	9.4	3.1	220.2
Mission	0.0	0.0	0.0	7.7	69.2	23.1	0.0	15.0
San Diego	16.4	12.7	16.4	16.4	20.3	12.7	5.1	221.1
Valley	32.4	17.6	14.7	5.9	17.6	11.8	0.0	87.2
County Psych	100.0	0.0	0.0	0.0	0.0	0.0	0.0	97.1

(Source: Office of Statewide Health Planning and Development)

* Average length of patient stay could not be determined since Children's Hospital did not discharge any patients in 1989.

** Data for Community Hospital of Chula Vista was not categorized by age groups.

APPENDIX E

SUMMARY OF NAVAL HOSPITAL, SAN DIEGO PATIENTS TRANSFERRED TO CIVILIAN FACILITIES, CALENDAR YEAR 1989

Medical Facility	Active Duty/ Retirees	Depend Spouse	Depend Children	Paid Patient
UCSD Medical Center	7	6	13	
Grossmont Hospital	4	2	5	
Alvarado Hospital	1	1		
Scripps Memorial, La Jolla	4	2		
Scripps Chula Vista			4	
Mercy Hospital	3	3	6	
Donald N. Sharp Memorial*	8	9		
Sharp Cabrillo*	1			
Mesa Vista Hospital			1	
Children's Hospital*			12	3
Tri-City Medical Center	3	1	2	
Paradise Valley Hospital	2	3		
Fall Brook Hospital				1
Beverly Manor Conv Hosp*		1		
Nursing Home*	3	4		
Southwood Psych Hospital			1	
VA Hospital, La Jolla*	7			
Good Samaritan Hospital*				1
UCLA Medical Center			1	
Civilian Hospital (out of county)	1		1	
VA Hospital, Seattle WA*	2			
VAMC Palo Alto CA*	4			

(Source: Naval Hospital, San Diego)

* Medical health care facilities that have an associated skilled nursing facility and/or nursing home.

APPENDIX E (CONTINUED)

SUMMARY OF NAVAL HOSPITAL, SAN DIEGO PATIENTS TRANSFERRED TO CIVILIAN FACILITIES, CALENDAR YEAR 1989

Medical Facility	Active Duty/ Retirees	Depend Spouse	Depend Children	Paid Patient
VA Hospital LA CA*	1			
VAMC Durham	1			
VAMC Boston Mass	1			
VAMC Ann Arbor Mich*	1			
VAMC San Antonio Texas	1			
VAMC Cleveland Ohio	1			
VAMC Tuskegee AL*	1			
VAMC Brookland NY*	1			
VAMC Atlantic GA*	1			

(Source: Naval Hospital, San Diego)

* Medical health care facilities that have an associated skilled nursing facility and/or nursing home.

APPENDIX F

NAVAL HOSPITAL, SAN DIEGO PATIENTS TRANSFERRED TO A SKILLED NURSING FACILITY OR NURSING HOME, CALENDAR YEAR 1989

Medical Facility	Active Duty	Retired	Dependent Spouse	Xfer Date
Beverly Manor Convalescent Hospital			1	12 May
Meadowlark Convalescent Hospital		1		28 Jul
Wilson Manor Convalescent Hospital			1	23 Jun
Saint Paul Health Care Center			1	03 Aug
California Special Care SNF		1		29 Aug
Paradise Hills SNF			1	08 Sep
Lemon Grove Convalescent Facility		1		24 Sep
Discharged home. Follow up by Health Prime.			1	20 Nov
VA Hospital La Jolla	1			18 Sep

(Source: Naval Hospital, San Diego)

APPENDIX G

HB/SNF EMPLOYEE JOB DESCRIPTIONS AND PERCENTAGE OF TOTAL HOURS

Position	Pal	Pom	Child	DNSharp	Miss
Management/Supervision	4.10	3.44	2.91	3.88	*
Technical/Specialist	0.03	0.20	2.35	0.97	3.31
Registered Nurses	12.60	18.97	8.91	9.42	31.57
Licensed Vocational Nurses	24.77	14.31	4.39	18.54	8.51
Aids/Orderlies	57.51	58.68	71.48	57.45	56.60
Environmental/Food Service	*	*	1.11	*	*
Clerical/Administrative	1.00	4.27	7.45	9.73	*
Other Salaries and Wages	0.004	0.12	1.41	*	*
Total (may not equal 100% due to rounding)	100.00	99.99	100.01	99.99	99.99

(Source: Office of Statewide Health Planning and Development)

* Had no employees in this position.

APPENDIX G (CONTINUED)

**HB/SNF EMPLOYEE JOB DESCRIPTIONS
AND PERCENTAGE OF TOTAL HOURS**

Position	Hill	SD Phy	Chula	Coro
Management/Supervision	4.94	7.78	*	3.52
Technical/Specialist	*	*	*	3.33
Registered Nurses	3.13	8.84	15.53	11.00
Licensed Vocational Nurses	27.97	21.64	15.30	11.68
Aids/Orderlies	60.14	60.00	68.50	68.53
Environmental/Food Service	*	*	*	1.93
Clerical/Administrative	2.91	*	0.67	*
Other Salaries and Wages	0.91	1.73	*	*
Total (may not equal 100% due to rounding)	100.00	99.99	100.00	99.99

(Source: Office of Statewide Health Planning and Development)

* Had no employees in this position

APPENDIX H

HB/SNF FULL TIME EQUIVALENT EMPLOYEES PER PATIENT DAY

Hospital	Full Time Equivalent Employees	Units Of Service	Full Time Equivalent Employees Per Day
Palomar	53.57	25105	0.78
Pomerado	51.25	17976	1.04
Children's	3.77	2190	0.63
Donald N Sharp	92.15	41937	0.80
Mission Bay	19.31	5423	1.30
Hillside	17.61	10157	0.63
S.D. Physicians	8.21	4477	0.67
Chula Vista	58.73	26754	0.80
Coronado	27.09	17458	0.57

(Source: Office of Statewide Health Planning and Development)

APPENDIX I

GENERAL ACUTE CARE INPATIENT DATA

Facility	Census	Licen- sed Beds	Patient Days	Dis- charges	Licensed Bed Days	Occup Rate
Palomar Medical Center	184	303	72995	14002	110451	66.1
Pomerado Hospital	76	130	28557	6122	47450	60.2
Children's Hospital	123	154	46724	8551	55922	83.6
Donald N. Sharp Memorial Hospital	326	415	119804	23611	151475	79.1
Mission Bay Memorial Hospital	67	124	20143	3168	45260	44.5
Hillside Hospital	36	100	12102	1822	38417	31.5
*SD County Psych Hospital	57	75	19211	1021	12000	160.1
**SD Phys & Surgeons Hospital	35	78	9719	1291	28470	34.1
Sharp Cabrillo Hospital	80	172	26740	5225	68996	38.8
Comm Hosp of Chula Vista	111	131	37157	5451	47815	77.7
Coronado Hospital	29	64	11129	2371	23360	47.6
Valley Medical Center	49	143	15744	2493	52195	30.2

(Source: Office of Statewide Health Planning and Development)

*Data shown is for acute psychiatric vice general acute care.

**Part year data plus estimate of remainder.

APPENDIX J

HOSPITAL-BASED SKILLED NURSING FACILITIES EXPENSES

Expenses	Palomar	Pomerado	Children's
Compensation Paid	14999	0	0
Salaries and Wages	1066467	1011440	65489
Employee Benefits	302251	268050	12300
Reclassified Physician and Student Compensation	0	0	0
Professional Fees	96304	141443	0
Purchased Services	6010	107	703
Supplies	125695	48543	2088
Depreciation	23756	16200	952
Leases and Rentals	34184	9595	0
Other Direct Expenses	2792	1784	145
Total Direct Expenses	1657458	1497162	81677
Adjustment of Direct Expenses	(539)	(150)	0
Adjusted Direct Expenses	1656919	1497012	81677
Units of Service	25105	17976	2190
Adjusted Direct Expenses Per Unit	\$66.00	\$82.28	\$37.30

(Source: Office of Statewide Health Planning and Development)

APPENDIX J (CONTINUED)

HOSPITAL-BASED SKILLED NURSING FACILITIES EXPENSES

Expenses	D N Sharp	Mission Bay	Hillside
Compensation Paid	0	0	0
Salaries and Wages	1743043	678679	328220
Employee Benefits	378876	170635	106813
Reclassified Physician and Student Compensation	0	0	4554
Professional Fees	71842	0	7857
Purchased Services	6112	2952	4179
Supplies	46390	10125	20162
Depreciation	0	71837	0
Leases and Rentals	0	0	1010
Other Direct Expenses	6388	44817	1070
Total Direct Expenses	2252651	979045	473865
Adjustment of Direct Expenses	0	0	0
Adjusted Direct Expenses	2252651	979045	473865
Units of Service	41937	5423	10157
Adjusted Direct Expenses Per Unit	\$53.72	\$180.54	\$46.65

(Source: Office of Statewide Health Planning and Development)

APPENDIX J (CONTINUED)

HOSPITAL-BASED SKILLED NURSING FACILITIES EXPENSES

Expenses	SD Physician	Chula Vista	Coronado
Compensation Paid	0	0	0
Salaries and Wages	133903	85926	542255
Employee Benefits	47553	117164	154843
Reclassified Physician and Student Compensation	1000	0	0
Professional Fees	5114	0	0
Purchased Services	1890	8697	7055
Supplies	14647	24997	20480
Depreciation	4657	229207	8873
Leases and Rentals	0	445	0
Other Direct Expenses	541	345	16863
Total Direct Expenses	209305	1233781	750369
Adjustment of Direct Expenses	0	(14572)	0
Adjusted Direct Expenses	209305	1219209	750369
Units of Service	4477	26754	17458
Adjusted Direct Expenses Per Unit	\$46.75	\$45.57	\$42.98

(Source: Office of Statewide Health Planning and Development)

APPENDIX K

GENERAL ACUTE CARE EXPENSES

Expenses	Palomar	Pomerado	Children's
Compensation Paid	0	0	0
Salaries and Wages	4831175	1630377	6934596
Employee Benefits	1855548	537872	1153839
Reclassified Physician and Student Compensation	0	0	0
Professional Fees	185132	184266	836967
Purchased Services	3775	4845	34514
Supplies	256652	101292	461682
Depreciation	170369	27294	212143
Leases and Rentals	2634	2792	33486
Other Direct Expenses	50289	4526	7901
Total Direct Expenses	7355574	2493264	9675128
Adjustment of Direct Expenses	1101	313	0
Adjusted Direct Expenses	7354473	2492951	9675128
Units of Service	51312	17244	30939
Adjusted Direct Expenses Per Unit	\$143.33	\$144.57	\$312.72

(Source: Office of Statewide Health Planning and Development)

APPENDIX K (CONTINUED)

GENERAL ACUTE CARE EXPENSES

Expenses	SD Phys	Chula Vista	Coronado
Compensation Paid	0	0	0
Salaries and Wages	146922	3096957	654376
Employee Benefits	44726	424400	147583
Reclassified Physician and Student Compensation	0	0	0
Professional Fees	41872	0	0
Purchased Services	522	570616	86331
Supplies	7543	118100	42256
Depreciation	2218	134958	4543
Leases and Rentals	0	1170	0
Other Direct Expenses	0	4523	11096
Total Direct Expenses	243803	4350724	946185
Adjustment of Direct Expenses	0	0	0
Adjusted Direct Expenses	243803	4350724	946185
Units of Service	1561	24845	7072
Adjusted Direct Expenses Per Unit	\$156.18	\$175.11	\$133.79

(Source: Office of Statewide Health Planning and Development)

APPENDIX K (CONTINUED)

GENERAL ACUTE CARE EXPENSES

Expenses	DN Sharp	Mission Bay Hillside	
Compensation Paid	0	0	0
Salaries and Wages	7613767	1304053	952221
Employee Benefits	2222777	378583	381854
Reclassified Physician and Student Compensation	0	0	0
Professional Fees	826495	80000	146287
Purchased Services	18320	344962	11251
Supplies	432331	37252	75292
Depreciation	61932	255074	9442
Leases and Rentals	4141	0	54
Other Direct Expenses	24711	222745	5951
Total Direct Expenses	11204474	2622669	1582352
Adjustment of Direct Expenses	0	0	0
Adjusted Direct Expenses	2252651	2622669	1582352
Units of Service	41937	11457	9894
Adjusted Direct Expenses per Unit	\$53.72	\$228.91	\$159.93

(Source: Office of Statewide Health Planning and Development)

APPENDIX L

HEALTH CARE FACILITIES ADULT/PEDIATRIC PATIENT DAYS

Services	Palomar	Pomerado	Children	DN	Sharp	Mission
Med/Surg Acute	51312	17244	0	53942	11457	
Pediatric Acute	4300	0	30939	0	0	
Psychiatric Acute	4457	0	0	0	0	
Obstetrics Acute	5145	3323	0	24978	0	
Rehab Care	0	0	0	12642	0	
Definitive Obs	3573	0	0	10363	4205	
Other Acute Care	0	5360	0	0	3639	
Med/Surgical IC	7280	2446	0	7829	0	
Coronary IC	0	0	0	2634	0	
Pediatric IC	0	0	3899	0	0	
Neonatal IC	0	0	8934	8463	0	
Nursery Acute	4288	3024	0	14621	0	
Skilled Nursing	25105	17976	2190	41937	5423	
Intermediate Care	0	0	17851	0	0	
Total Daily Serv	105460	49373	63813	177409	24724	

(Source: Office of Statewide Health Planning and Development)

APPENDIX L (CONTINUED)

HEALTH CARE FACILITIES ADULT/PEDIATRIC PATIENT DAYS

Services	Hillside	SD Phys	Chula	Coronado
Med/Surgical Acute	9894	1561	24845	7072
Pediatric Acute	0	0	143	0
Psych Acute	0	0	0	0
Obstetrics Acute	0	0	0	1703
Rehab Care	0	0	0	0
Definitive Observe	0	0	0	0
Other Acute Care	0	331	0	1381
Med/Surgical IC	1641	236	0	1114
Coronary IC	0	0	2578	0
Pediatric IC	0	0	0	0
Neonatal IC	0	0	0	0
Nursery Acute	0	0	0	1243
Skilled Nursing	10157	4477	26754	17458
Intermediate Care	0	0	0	0
Total Daily Serv	21692	6605	54320	29971

(Source: Office of Statewide Health Planning and Development)
 Note: Hillside Hospital, San Diego Physicians and Surgeons Hospital, Community Hospital of Chula Vista, and Coronado provided no Pediatric, Neonatal, and Nursery acute and/or intensive care.

APPENDIX M

NAVAL HOSPITAL, SAN DIEGO INPATIENT DATA, FISCAL YEAR 1989

Service	Admiss- ions	Dis- charges	Ave Lgth Of Stay	Ave Occup Rate	Total Patient Days
*Internal Medicine	3217	3250	7.3	64.9	23692
*Infectious Disease	336	328	11.0	9.8	3592
*Cardiology	1388	1383	4.7	17.9	6528
Coronary Care	127	114	13.3	4.2	1515
Dermatology	9	9	2.0	0.0	18
*Endocrinology	3	2	10.5	0.1	21
*Gastroenterology	15	12	10.8	0.4	129
*Hematology/Oncology	267	271	7.9	5.9	2150
Medical ICU	74	69	18.9	3.6	1303
*Nephrology	64	64	4.6	0.8	294
*Neurology	57	61	6.8	1.1	415
*Pulmonary/Resp/Chest	19	20	5.9	0.3	118
Rheumatology	0	0	0.0	0.0	0
*General Surgery	2311	2303	4.4	27.9	10168
*Cardiothoracic Surg	267	273	8.3	6.2	2277
*Vascular Surgery	354	352	5.7	5.5	2002
Surgical ICU	91	65	30.6	5.4	1987
*Neurosurgery	532	542	6.3	9.4	3441
Ophthalmology	764	768	2.4	5.0	1830

(Source: Naval Hospital, San Diego)

*Service which comprise Medical/Surgical Acute Care

APPENDIX M (CONTINUED)

**NAVAL HOSPITAL, SAN DIEGO
INPATIENT DATA, FISCAL YEAR 1989**

Service	Admiss- ions	Dis- charges	Ave Lgth Of Stay	Ave Occup Rate	Total Patient Days
Oral Surgery	245	244	2.9	2.0	714
Otolaryngology	1606	1597	2.2	9.5	3476
Pediatric Surgery	25	25	3.9	0.3	97
Plastic Surgery	391	391	4.7	5.0	1830
*Urology	1415	1412	4.3	16.6	6065
Gynecology	1394	1404	3.0	11.7	4262
Gynecology-Contract	104	95	3.2	0.8	300
Obstetrics	2569	2610	3.0	21.4	7798
Obstetrics-Contract	359	337	3.1	2.8	1037
Pediatrics	1428	1416	4.2	16.3	5946
Pediatrics-Contract	7	7	8.9	0.2	62
Orthopedics	2706	2701	5.1	37.6	13712
Podiatry	147	148	2.2	0.9	323
Psychiatry	935	935	11.0	28.1	10265
Substance Abuse	263	241	43.2	28.5	10420
Subtotal	23489	23449	5.4	350.1	127787
Newborn Nursery	2388	2407	2.6	16.9	6176
Neonatal ICU	177	181	12.9	6.4	2341
Subtotal (Newborns)	2565	2588	3.3	23.3	8517
Total	26054	26037	5.2	373.4	136304

(Source: Naval Hospital, San Diego)

*Services which comprise Medical/Surgical Acute Care.

APPENDIX N

RATIO OF TOTAL FACILITY EQUIVALENT BEDS TO SKILLED NURSING EQUIVALENT BEDS

Category	Palomar	Pomerado	Children	DN Sharp	Mission
Total Facility Equivalent Beds	198.09	75.48	156.46	402.60	38.08
General Acute Care Equivalent Beds	121.62	45.75	102.83	257.87	29.81
Skilled Nursing Equivalent Beds	70.98	30.96	7.34	147.25	8.07
Ratio of Total Beds to Skilled Nursing Beds	2.79:1	2.44:1	*21.3:1 (2.85:1)	2.73:1	10.31:1

(Source: Office of Statewide Health Planning and Development)

Note: Number of equivalent beds was determined by multiplying number of beds identified in 1989 census by average occupancy rate.

*This value is unrepresentative of average ratio of total beds to skilled nursing beds for the nine facilities. However, when the number of intermediate care beds are summed with number of skilled nursing beds to obtain total number of long-term care beds, a more equitable ration of 2.85:1 is derived.

APPENDIX N (CONTINUED)

**RATIO OF TOTAL FACILITY EQUIVALENT BEDS
TO SKILLED NURSING EQUIVALENT BEDS**

Category	Hillside	SD Phys	Chula	Coronado
Total Facility Equivalent beds	30.19	70.91	180.92	51.60
General Acute Care Equivalent Beds	11.34	11.93	86.25	13.80
Skilled Nursing Equivalent Beds	29.92	64.94	96.48	43.90
Ratio of Total Beds to Skilled Nursing Beds	1.01:1	1.09:1	1.87:1	1.17:1

(Source: Office of Statewide Health Planning and Development)

Note: Number of equivalent beds was determined by multiplying number of beds identified in 1989 census by average occupancy rate.

APPENDIX O

HB/SNF EMPLOYEE WAGE RATES PER HOUR

Position	Pal	Pom	Child	DNS	Sharp	Miss
Management/Supervision	16.05	13.70	17.43	18.52	*	
Technical/Specialist	18.40	6.82	12.97	11.81	27.47	
Registered Nurses	14.09	14.29	13.37	16.42	22.97	
Licensed Vocational Nurses	10.66	10.49	10.98	10.38	18.07	
Aids/Orderlies	7.16	6.87	6.48	6.55	12.71	
Environmental/Food Service	*	*	6.10	*	*	
Clerical/Administrative	7.25	8.23	8.91	5.21	*	
Other Salaries and Wages	9.41	5.10	8.33	*	*	
Cost Center Average Hour Rate	9.27	9.08	7.89	8.57	15.61	

(Source: Office of Statewide Health Planning and Development)

* Had no employees in this position

APPENDIX O (CONTINUED)

HB/SNF EMPLOYEE WAGE RATES PER HOUR

Position	Hill	SD Phys	Chula	Coro
Management/Supervision	19.32	15.15	*	18.53
Technical/Specialist	*	*	*	8.82
Registered Nurses	18.40	14.80	15.09	15.87
Licensed Vocational Nurses	10.75	9.72	9.53	9.25
Aids/Orderlies	6.88	6.84	6.13	6.98
Environmental/Food Services	*	*	*	11.29
Clerical/Administrative	7.14	*	9.10	*
Other Wages and Salaries	8.06	6.49	*	*
Cost Center Average Hour Rate	9.19	8.87	8.06	8.77

(Source: Office of Statewide Health Planning and Development)

* Had no employees in this position

APPENDIX P

GENERAL ACUTE CARE EMPLOYEE JOB DESCRIPTIONS AND PERCENTAGE OF TOTAL HOURS

Position	Pal	Pom	Child	DNSharp	Miss
Management/Supervision	6.79	8.29	3.20	1.80	1.32
Technical/Specialist	1.38	8.45	0.06	1.30	0.59
Registered Nurses	50.82	54.90	78.06	58.69	56.82
Licensed Vocational Nurses	16.44	22.21	7.39	4.80	5.84
Aids/Orderlies	10.04	2.75	3.80	25.98	35.42
Environmental/Food Service	*	*	0.04	*	*
Clerical/Administrative	10.30	3.38	7.44	7.40	*
Other Salaries and Wages	4.26	*	*	0.03	*
Total (may not equal 100% due to rounding)	100.00	99.98	99.99	100.00	99.99

(Source: Office of Statewide Health Planning and Development)

* Had no employees in this position.

APPENDIX P (CONTINUED)

**GENERAL ACUTE CARE EMPLOYEE JOB DESCRIPTIONS
AND PERCENTAGE OF TOTAL HOURS**

Position	Hill	SD Phys	Chula	Coro
Management/Supervision	3.75	3.69	1.90	4.20
Technical/Specialist	*	*	3.07	*
Registered Nurses	62.56	73.34	63.34	60.64
Licensed Vocational Nurses	16.98	22.96	15.82	21.04
Aids/Orderlies	13.22	*	7.15	10.19
Environmental/Food Service	*	*	*	*
Clerical/Administrative	3.49	*	8.71	3.92
Other Salaries and Wages	*	*	*	*
Total (may not equal 100% due to rounding)	100.00	99.99	99.99	99.99

(Source: Office of Statewide Health Planning and Development)

* Had no employees in this position.

APPENDIX Q

GENERAL ACUTE CARE FULL TIME EQUIVALENT EMPLOYEES PER PATIENT DAY

Hospital	Full Time Equivalent Employees	Units Of Service	Full Time Equivalent Employees Per Day
Palomar	172.37	51312	1.23
Pomerado	52.37	17244	1.11
Children's	187.28	30939	2.21
Donald N. Sharp	227.23	53942	1.54
Mission Bay	40.43	11457	1.29
Hillside	31.56	9894	1.16
S.D. Physicians	4.39	1561	1.03
Chula Vista	129.21	24845	1.90
Coronado	22.47	7072	1.16

(Source: Office of Statewide Health Planning and Development)

APPENDIX R

GENERAL ACUTE CARE EMPLOYEE WAGE RATES PER HOUR

Position	Pal	Pom	Child	DNS	Sharp	Miss
Management/Supervision	17.86	17.61	21.53	21.89	29.95	
Technical/Specialist	9.36	10.12	19.95	20.36	17.07	
Registered Nurses	15.84	16.94	17.11	18.64	16.87	
Licensed Vocational Nurses	10.75	11.39	15.26	13.30	14.65	
Aids/Orderlies	7.94	8.68	8.14	8.73	12.89	
Environmental/Food Service	*	*	9.43	*	*	
Clerical/Administrative	9.00	9.36	9.30	10.73	*	
Other Salaries and Wages	6.96	*	*	8.26	*	
Cost Center Average Hour Rate	13.17	14.70	16.49	15.66	14.61	

(Source: Office of Statewide Health Planning and Development)

* Had no employees in this position

APPENDIX R (CONTINUED)

GENERAL ACUTE CARE EMPLOYEE WAGE RATES PER HOUR

Position	Hill	SD Phys	Chula	Coro
Management/Supervision	20.64	19.96	18.26	16.93
Technical/Specialist	*	*	11.59	*
Registered Nurses	16.86	17.08	15.07	14.86
Licensed Vocational Nurses	11.20	11.07	10.37	6.21
Aids/Orderlies	7.06	*	7.12	9.82
Environmental/Food Service	*	*	*	*
Clerical/Administrative	9.99	*	8.69	8.25
Other Salaries and Wages	*	*	*	*
Cost Center Average Hour Rate	14.60	15.51	14.82	12.35

(Source: Office of Statewide Health Planning and Development)

* Had no employees in this position

APPENDIX S

NAVAL HOSPITAL, SAN DIEGO WARD UTILIZATION

Description	Ward	Number Beds	Description	Ward	Number Beds
Psychiatry	1N	30	General Medicine	5W	27
Psychiatry	1W	25	Alcohol Rehab	6-2	24
Pediatrics	2E	28	Special Eval (HIV)	6-5	14
Light Care	2N	21	Preadmission Ward	P2E	50
Neonatal ICU	3AIC	21	Preadmission Ward	P2N	20
Intermediate Care Nursery	3AIN	75	Preadmission Ward	P3E	50
Labor & Delivery	3ALD	12	Preadmission Ward	P4E	50
Orthopedics	3E	34	Preadmission Ward	P4N	50
Pediatric IC	3PIC	4	Preadmission Ward	P4W	50
Mother/Baby Care Unit	3W	90	Preadmission Ward	P5E	50
Coronary Care Unit	4ACC	16	Preadmission Ward	P5N	50
ICU	4AIC	13	Preadmission Ward	P5W	50
Surgery	4E	38	Same Day Admission	SD2E	20
Surgery	4N	39	Same Day Admission	SD3E	33
Same Day Surgery	4SDS	30	Surg Same Day Adm	SD4E	20
CCU Step Down	4W	30	Surg Same Day Adm	SD4N	20
General Medicine	5E	36	Same Day Adm Urology	SD53	20
General Medicine	5N	32			

(Source: Naval Hospital San Diego)

Note: Number of beds is based on level of staffing available.

APPENDIX T

SKILLED NURSING FACILITY EXPENSES AND STAFFING REQUIREMENTS

1. Potential Savings Per Unit Through Utilization Of Skilled Nursing

\$167.58 (acute care expenses per unit) - \$66.86 (skilled nursing expenses per unit) = \$100.72 (potential savings per unit)

2. Potential Savings Per Year (1989 dollars) Through Utilization Of A Skilled Nursing Facility

\$100.72 (savings per unit) x 37 (number of beds) x 365 (days in year) = \$1,360,223.60 (potential savings in 1989)

3. Skilled Nursing Facility Daily Expenses (based on a 37 bed SNF)

\$66.86 (skilled nursing expenses per unit) x 37 (number of patients) = \$2473.82 (total expenses per day)

Total Expense	From Fig 12	Category Of Expense	Individual Expense
\$2473.86 x 0.703		(salaries/wages)	\$1739.12
\$2473.86 x 0.170		(employee benefits)	\$420.46
\$2473.86 x 0.034		(supplies)	\$84.11
\$2473.86 x 0.039		(depreciation)	\$96.48
\$2473.86 x 0.035		(professional fees)	\$86.58
\$2473.86 x 0.019		(miscellaneous)	\$47.00
Total			\$2473.85

4. Allocation Of Skilled Nursing Facility Daily Staffing Costs (Based On a 37 Bed SNF)

Total Position Wages	From Fig 7	Job Position	Individual Position Wages
\$1739.12 x 0.1247		(RN)	= \$216.87 + \$18.90 = \$ 235.77
\$1739.12 x 0.1618		(LVN)	= \$281.39 + \$24.52 = \$ 305.91
\$1739.12 x 0.5596		(Aid)	= \$973.21 + \$84.81 = \$1058.02
\$1739.12 x 0.0357		(Clerical)	= \$ 62.09 + \$ 5.41 = \$ 67.50
\$1739.12 x 0.0280		(Mgmt)	= \$ 48.69 + \$ 4.24 = \$ 52.93
\$1739.12 x 0.0074		(Specialist)	= \$ 12.87 + \$ 1.12 = \$ 13.99
\$1739.12 x 0.0016		(Food Service)	= \$ 2.78 + \$ 0.24 = \$ 3.02
\$1739.12 x 0.0012		(Other Wages)	= \$ 2.09 + \$ 0.18 = \$ 2.27
\$1739.12 x 0.0802		(Non-prod Time)	= \$139.44
Total (does not add to \$1739.12 due to rounding)			\$1739.42
Note: Non-productive time is allocated to job positions			

APPENDIX T (CONTINUED)

SKILLED NURSING FACILITY EXPENSES AND STAFFING REQUIREMENTS

5. Calculation Of Skilled Nursing Facility Staffing

Job Position	Total Daily Wages	Wage Rate Fig 13	Total Hours Per Day	Total People Per Shift
RN	\$ 235.77 /	\$16.14 =	14.61	0.610
LVN	\$ 305.91 /	\$11.09 =	27.58	1.150
Aid/Orderly	\$1058.02 /	\$ 7.40 =	142.97	5.960
Clerical/Admin	\$ 67.50 /	\$ 7.64 =	8.83	0.370
Envir/Food Serv	\$ 13.99 /	\$ 8.69 =	1.61	0.070
Tech/Specialist	\$ 3.02 /	\$14.38 =	0.21	0.009
Other	\$ 2.27 /	\$ 7.48 =	0.30	0.010

6. Skilled Nursing Facility Staffing, Based On Allocation Of \$1739.12 Per Day For Salaries/Wages (1989 dollars)

Day	Evening	Night	Cost
RN	RN	RN	\$ 387.36
LVN	LVN	LVN	\$ 266.16
Aid	Aid	Aid	\$ 177.60
Aid	Aid	Aid	\$ 177.60
Aid	Aid	Aid	\$ 177.60
Aid	Aid	Aid	\$ 177.60
Aid	Aid	Aid	\$ 177.60
Aid	Aid	Aid	\$ 177.60
Aid	Aid	Aid	\$ 177.60
Clerk			\$ 61.12
Total			\$1780.24

Note: This generic watchbill is provided for illustrative purposes only. The Director of Nursing would determine actual staffing requirements based on patient occupancy rate and case-mix.

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